D12
Digital Power Amplifier

ELAN®
HOME SYSTEMS

Preface

Purpose of This Manual

This manual provides step-by-step installation instructions and connection examples, along with basic user information for installation and ongoing use of the D12 Digital Power Amplifier. This manual is written for the installer of this equipment.

Organization

The following information is contained in this manual:

Safety Information	Provides a comprehensive list of safety practices and procedures allowing for the safe installation and operation of ELAN Home Systems' D12 Digital Power Amplifier.
D12 Introduction	Provides an introduction to the D12 Digital Power Amplifier, along with system features to include Front and Rear panel controls, indicators and connections, along with a short description of each.
D12 System Design Overview	Provides a system design application overview of the D12 Digital Power Amplifier for use in audio applications.
D12 Connections	Provides a description of D12 Digital Power Amplifier connections including connections made with ELAN Multi-Room Systems and direct connections to the the D12 Digital Power Amplifier from other components.
Troubleshooting	Provides troubleshooting tables to help fix common discrepancies that may be associated with the D12 Digital Power Amplifier.
Specifications	Appendix A provides equipment specifications for the D12 Digital Power Amplifier.
Rack Mounting	Appendix B provides specifications for Rack Mounting of the D12 Digital Power Amplifier using the included Rack Mount Brackets.

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WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN!

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR SHOCK,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION

IMPORTANT SAFETY INFORMATION

Read Information—All the safety and operating information should be read before the appliance is operated.

Follow Information—All operating and use information should be followed.

Retain Information—The safety and operating information should be retained for future reference.

Heed Warnings—All warnings on the appliance and in the operating instructions should be heeded.

Wall Mounting—Mounting of this appliance should be done only by an authorized installer.

Ventilation—The appliances should be situated so that their location or position does not interfere with their proper ventilation.
These appliances should never be placed near or over a radiator or heat register.
These appliances should not be placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

Non-Use Periods—Appliances that are left unattended and unused for long periods of time should be de-energized.

Power Sources—The appliances should be connected to a power supply only of the type described in the operating instructions or as marked on each appliance. If you are not sure of the type of power supply to your home, consult your authorized ELAN dealer or local power company.

Grounding or Polarization—Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one blade wider than the other blade. A grounding type plug has two blades and a third grounding prong. The polarized wide blade and the third prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

N2154

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WARNING
RISK OF ELECTRIC SHOCK
DO NOT OPEN

Water and Moisture—To reduce the risk of electric shock or fire, these appliances should not be used near water—for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

Power Cord Protection—Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.

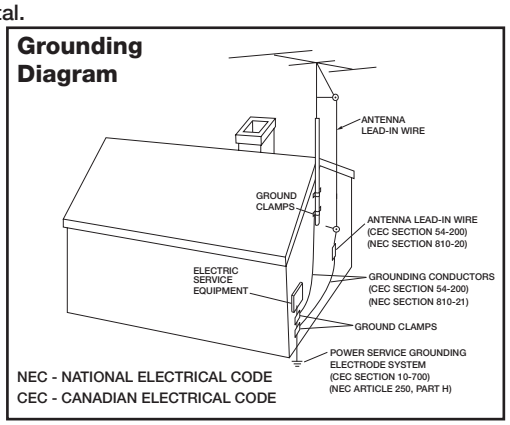
Telephones—Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning. Do not use a telephone to report a gas leak if the leak is in the vicinity of the ELAN electronic equipment because of risk of fire or explosion.

Cleaning—Unplug the apparatus from the power outlet before cleaning. Use only a dry cloth to clean the apparatus.

Power Lines—An outdoor antenna should be located away from power lines. When installing an outside antenna system, extreme care should be taken to avoid touching power lines or circuits, as contact with them may be fatal.

Outdoor Antenna Grounding—If an outside antenna or cable system is connected to these audio products, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges-Section 810 of the U.S. National Electrical Code, and Section 54 of the Canadian Electrical Code, provide information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See the grounding diagram (right).

Grounding Diagram


ANTENNA LEAD-IN WIRE
GROUND CLAMPS
ANTENNA LEAD-IN WIRE (CEC SECTION 54-200) (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (CEC SECTION 54-200) (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (CEC SECTION 10-700) (NEC ARTICLE 250, PART H)
NEC - NATIONAL ELECTRICAL CODE
CEC - CANADIAN ELECTRICAL CODE

Overloading—Do not overload wall outlets and extension cords, as this could result in fire or electric shock.

Object and Liquid Entry—Never insert objects of any kind through the openings of these appliances, as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Care should be taken so that objects do not fall and liquids are not spilled into the appliance through openings in the enclosure.

Servicing—Do not attempt to service these appliances yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service—These appliances should be serviced by qualified service personnel when:

- A power supply connection or a plug has been damaged or
- If liquid has been spilled into the appliance or objects have fallen into the appliance or
- The appliance has been exposed to water or moisture or
- The appliance does not appear to operate normally or exhibits a marked change in performance or
- The appliance has been dropped or the enclosure damaged.

Replacement Parts—When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards. The Master Control Unit battery should be replaced only after turning the power off and only by an authorized installer.

Safety Check—Upon completion of any service or repairs to this audio product, ask the service technician to perform safety checks to determine that the audio product is in proper operating condition.

Lightning Storms—Unplug this apparatus during lightning storms or when unused for long periods of time.

Attachments and Accessories—Use only attachments/accessories specified by the manufacturer.

Cart, Stand, Tripod, Bracket or Table—Use only with a cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip over.

Disconnect Device—Where the mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain operable.

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D12
Digital
Power Amplifier

Items in package:

- **D12 Power Amplifier**
- **Rack Mount Brackets**
- **Power Cord**
- **Installation Manual**

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Introduction

Introducing the latest in ELAN digital amplifier design and innovation - the D12 Digital Power Amplifier. Designed specifically for the custom installer, the D12 is the perfect solution for multi-room whole-house applications. Providing cool performance and flexibility, the D12 delivers 12 channels of powerful audio that can be configured into many combinations to suit any situation that may be encountered in a whole-house distributed audio system.

The D12 utilizes low heat/high efficiency Class D digital technology which features an 8X over-sampling rate and 48-bit signal processing delivering the cleanest and most efficient audio amplification available. Each channel of the D12 has a true power rating of 75W per channel @ 8 Ohms and 100W per channel @ 4 Ohms - all channels driven.

Configuration of the D12 can be done via front panel interface including Advanced setup features such as max volume output, min/max turn on levels. Independent Channel IR commands are available in ELAN's configuration software.

D12 Features

Class D Digital Technology

- Constructed with the highest quality components including Pro-Sound analog to digital (A/D) converters, superior grade capacitors, and high quality 5-way speaker binding terminals, the end result is a sound that is clean, clear and transparent.

75WPC @ 8 Ohms & 100WPC @ 4 Ohms

- The D12 combines micro controller technology to maximize efficiency and a muscular Multi-Tap Toroid power transformer to provide all the power necessary to ensure the delivery of deep powerful bass, musical mids and sparkling highs to any whole-house application.

Automatic Clipping Eliminator

- The D12 Limiter enables the amplified output to be continuously monitored for signal clipping.

Intelligent Monitoring

- The D12 utilizes advanced micro controller operational circuity that constantly monitors all of the amplifier's operation modes. Channel fault, thermal and impedance load monitoring for each channel provides important diagnostical information. In the event that a problem occurs on a channel during operation, the other channels will continue to provide audio. When the conditions for the troubled channel no longer exist, regular operation will resume after a front panel reset is performed.

Multiple Input and Bus Options

- The D12 has two stereo Bus inputs that are available to any or all 12 channels. Any stereo pair, including the bus inputs, can be summed internally for a mono channel output. These advanced routing features are programmable setup features through the front panel LCD. The front panel display also provides status monitoring and diagnostics.

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Buffered Loop Outputs

- Flexible routing of each audio channel without signal loss.

IR Control Files

- Independent channel Volume Up, Volume Down, Input Selection, Power, Mute, Link/Unlink channel pairs and more.

USB Port

- For firmware and configuration updates.

VIA!Net jack

- For control and monitoring.

Rack-Mount Brackets Included

- Easily mount in a standard equipment rack.

Available in 240 Volt Version

cTUVus Certified, CE®, and C-tick

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CAUTION

This D12 Digital Power Amplifier is capable of delivering in excess of 75 Watts into 8 Ohm loads and in excess of 100 Watts into 4 Ohm loads.

All devices connected to the D12, including but not limited to speakers, volume controls, speaker selectors, etc., should have a minimum power handling specification of 75 Watts @ 8 Ohms and 100 Watts @ 4 Ohms.

Failure to use properly rated devices can result in damage to the connected device, the amplifier, and may present a fire hazard.

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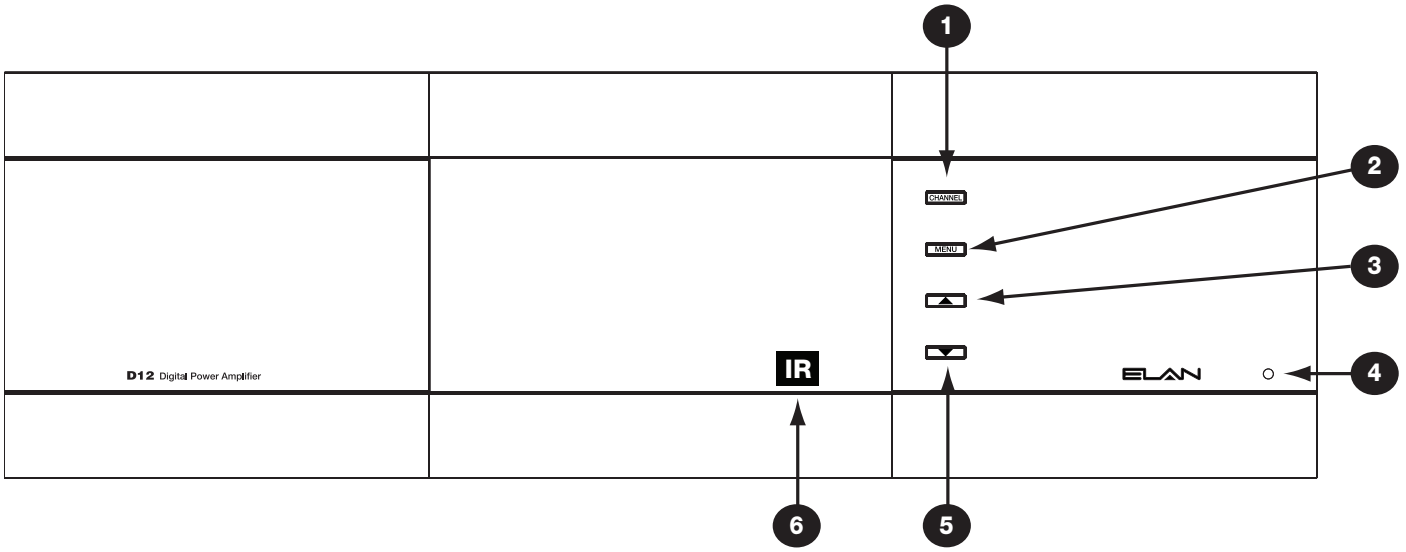
Identification of Controls

Front Panel



Front Panel Functions & Indicators

Item	*Description*
1	Channel Selector
2	Menu
3	Up Selector
4	Power LED
5	Down Selector
6	IR Icon Display

Front Panel Functions & Indicators

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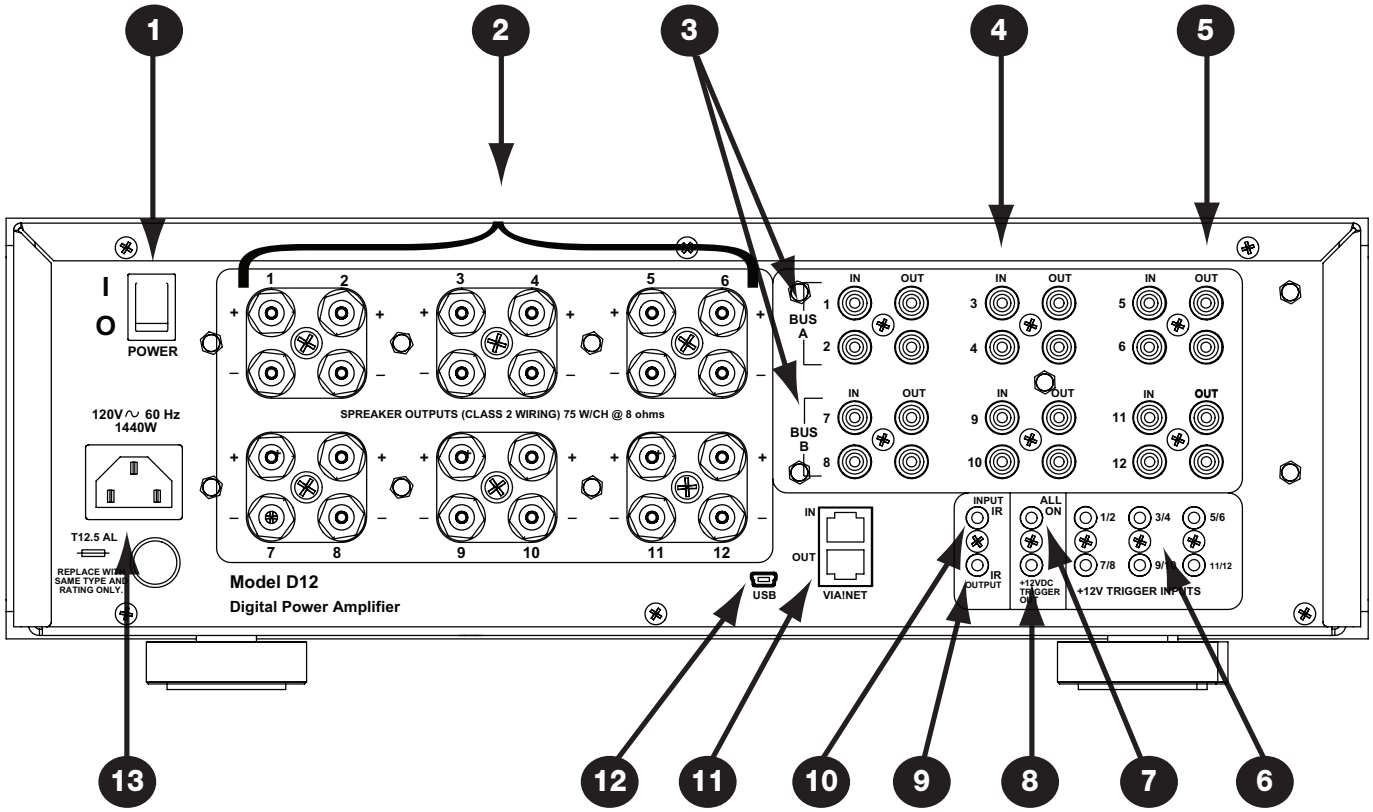
Rear Panel



Rear Items & Connectors

Item	*Description*
1	Power Switch
2	Channels 1-12 Speaker Outputs, 5 Way Binding Post
3	BUS A RCA Stereo Inputs/Outputs, Channels 1 and 2 BUS B RCA Stereo Inputs/Outputs, Channels 7 and 8
4	RCA Stereo Inputs Channels 1-12
5	RCA Stereo Outputs Channels 1-12
6	+12V Channel Pair Trigger Inputs, Triggers 1-2, 3-4, 5-6, 7-8, 9-10, 11-12
7	+12V All On Trigger Input
8	+12V Trigger Output
9	IR Output
10	IR Input
11	VIA!NET Input/Output
12	USB Mini B Port
13	Power Cable Connector

Rear Items & Connectors

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Rack Mounting

When mounting the D12 in an equipment rack, use the included Rack Mount Brackets for secure mounting and proper ventilation. The D12 requires three rack spaces.

To install the D12 into a standard 19" equipment rack:

1. Attach the rack mount bracket onto the D12 chassis from the front as shown in ***Figure C-1***.

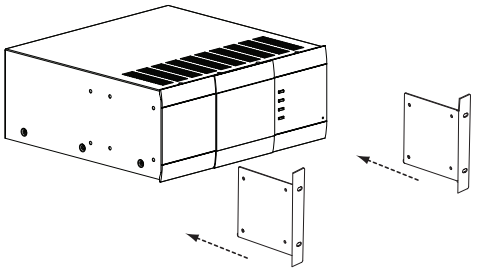

Figure C-1

2. Ensure that the brackets are flush with the front of the unit. Install each of the eight screws (included) through the side mounting flanges into the holes in the sides of the unit as shown in ***Figure C-2***. Hand tighten screws! Over-tightening could cause damage to the D12 Tuner.

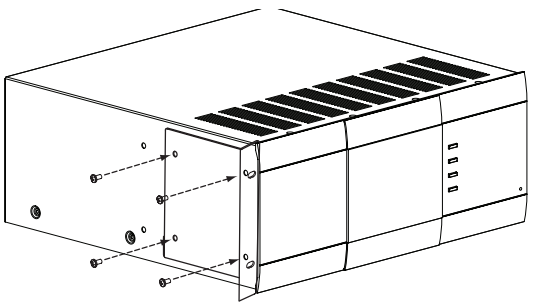

Figure C-2

3. Once the brackets are securely mounted, install the entire assembly into a standard 19" equipment rack from the front using four rack screws (not included). Three rack spaces will be used. See ***Figure C-3***.

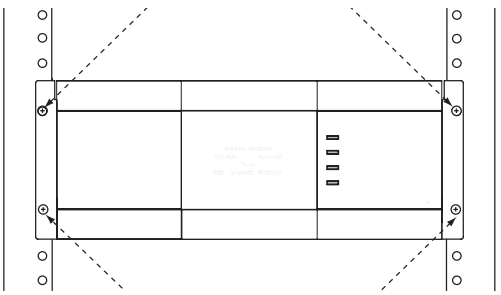

Figure C-3

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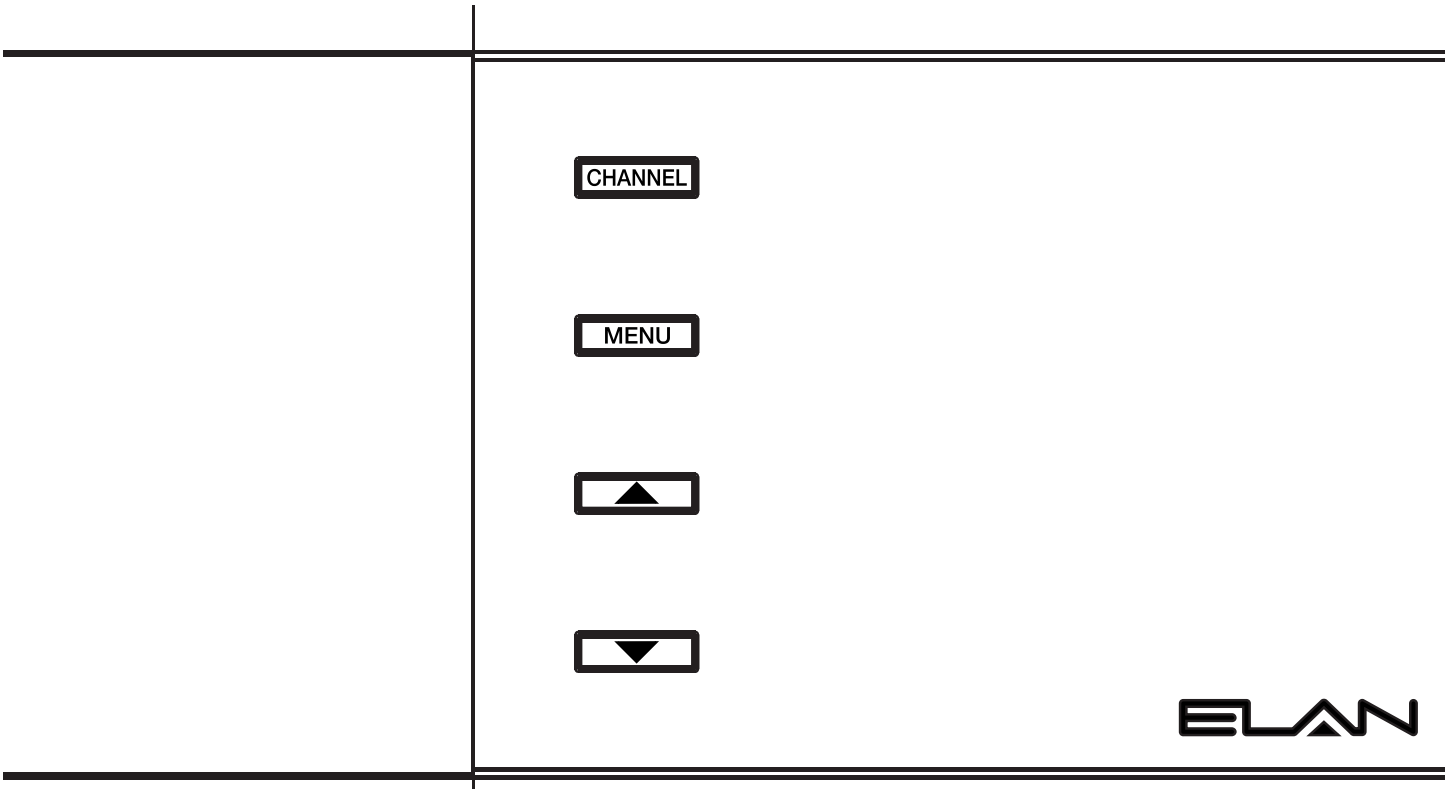
Operations & Settings

Front Panel Controls

The D12 front panel buttons provide control for the initial setup and amplifier status. Any button press activates the front panel LCD and displays the information until the LCD times out.



Front Panel Controls

Channel Button

The **Channel** button toggles through all available channels as well as the **ALL** channel option. Once a channel has been selected, the **UP** and **DOWN** buttons control the **MENU** item. In the **UTILITY** menu, the **Channel** button cycles through the **UTILITY** sub-menu structure.

Menu Button

The **MENU** button toggles through all **Settings** options. The **Settings** options will be slightly different depending if you are in **Normal** Mode or **ELAN** Mode.

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Normal Mode

Normal Mode menu items are:

Amplifier Status, Volume, Input Select, Lock, Limiter, Power Saving, Output View, and Utility.

The Utility menu items are:

Operating Mode, LCD Contrast, LCD Brightness, LCD Sleep Timer, Power Saving Mode, Firmware Version, Diagnostics, Ambient Temperature, Save Dealer Defaults, and Restore Defaults.

ELAN Mode

The **ELAN** mode menu items are the same except for the following additional menu items that are after Output View:

Absolute Max Volume, Min Turn On Volume, and **Max Turn On Volume**.

Amplifier Status, Volume, Input Select, Lock, Limiter, Power Saving, Output View, **Absolute Max Volume, Min Turn On Volume, Max Turn On Volume** and Utility

The **Utility** mode menu items are the same except for the following additional menu items that are after **Operating** Mode:

VIA!NET Address and **Channel Range**.

Operating Mode, **VIA!NET Address, Channel Range**, LCD Contrast, LCD Brightness, LCD Sleep Timer, Power Saving Mode, Firmware Version, Diagnostics, Ambient Temperature, Save Dealer Defaults, and Restore Defaults.

UP & DOWN Arrow Buttons

Adjusts menu selected item values incrementally.

Menu Options

The D12 Amplifier has two operating modes, **Normal** and **ELAN**.

ELAN mode provides feedback through VIA!NET and also allows the amplifier to listen to D12 IR Commands that can effect its channels.

Normal mode does not listen to IR Commands or allow VIA!NET feedback.

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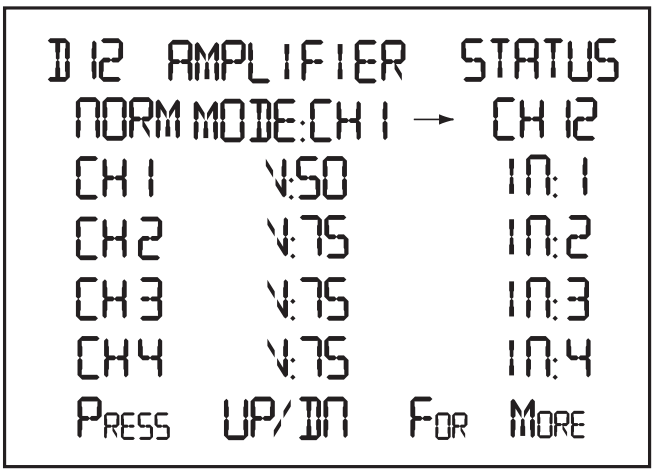
Normal Mode

Amplifier Status

When the **MENU** button is pressed for the first time, at Power ON, or after 50 seconds of no button activity, the **Amplifier Status** screen displays.

The top of the screen displays what Mode you are in, either **ELAN MODE** or **NORMAL MODE** followed by the channels of this chassis I.E. **CH1 - CH12**.

CH1 V50 IN1 means that audio input 1 (IN1) is being amplified at 50% (V50) and being routed to channel 1 (CH1).



Amplifier Status

Press **UP** or **DOWN** buttons to cycle channels four at a time.
Press **Channel** button to cycle one channel at a time.
Press the **MENU** button to move to the next menu.

Volume Menu

The **VOLUME** menu will allow any or all channel's volume to be adjusted from 0% (MUTE) to 100% (full gain).

The **Factory Default** setting for each channel is **75**.

The **VU** (Volume Unit) bar displays real time (current) volume detected at the selected channel output. The range is from -50 dB to 0 dB.

TRIGGER and **PS** (Power Sense)

See "Power Saving Menu" on page 11, **"Power Saving Mode" on page 15**, and **"Triggers" on page 28**.

Trigger ON is the factory default.

The TRIGGER options are:

- **On**: The selected channel is on (consuming energy) and the trigger jack on the rear panel is active.
- **Off**: The selected channel is off (NOT consuming energy) and the trigger jack on the rear panel is not active.
- **On/PS:** The selected channel is off (NOT consuming energy) because the selected channel is in Power Saving Mode even though the trigger jack on the rear panel is active.

When **ACE** is active on the selected **channel, ACE** will be displayed above **Volume %. See "ACE Menu" on page 10**.

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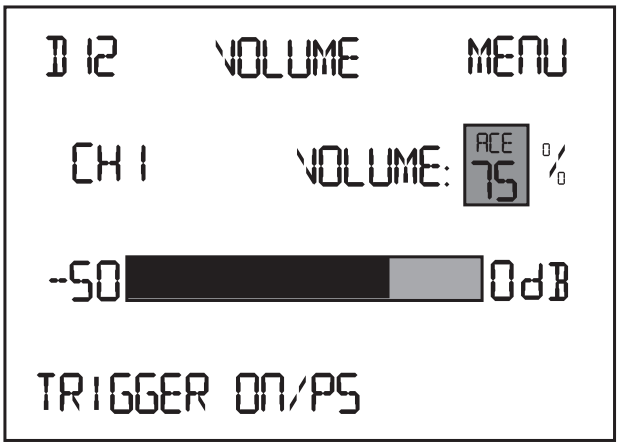
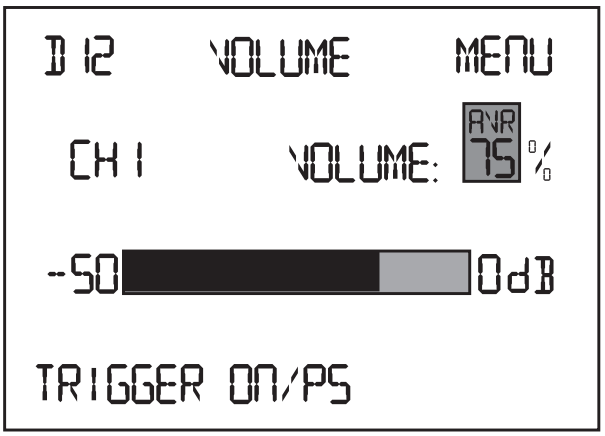


Volume Menu with ACE

When **AVR** is active, **AVR** (Automatic Volume Reduction) is displayed above Volume %. **AVR** is active whenever the amp is being overdriven. When **AVR** is active, the D12 turns its volume down until it is not being overdriven. The D12 will turn its volume up when it is not being overdriven.



Volume Menu with AVR

Press **UP** or **DOWN** buttons to change the **Volume %**.
Press **Channel** button to change the channel.
Press the **MENU** button to move to the next menu.

Setting System Volume Levels

1. Set each D12's channel levels by first lowering them to 25%.
2. Raise the volume of all touch panels, touchpads or volume controls to near maximum.
3. Play source program material, such as a CD or a radio station.
4. Have someone step into the room and listen.
5. Enable **ACE** for all channels. **See "ACE Menu" on page 10**

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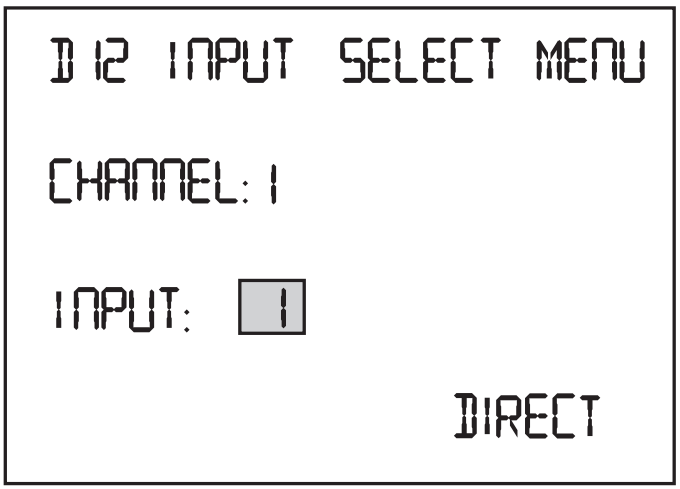
6. On the **Volume** screen, select the channel that is wired to the speaker where the person is listening.
7. Slowly adjust Volume Up for this channel until the audio begins to distort, then drop the level one or two percentages.
8. Follow this procedure for all channels to achieve a good balance of sound from the most used listening position in the zone.
9. Enable or Disable **ACE** for all applicable channels. **See "ACE Menu" on page 10**

Note: High volume levels can cause clipping and distortion. This can damage the loudspeaker's components and cause the amplifier to go into protection mode. The protection circuits will reset when the output signal conditions have returned to normal. Overdriving the amplifier can damage the amplifier and void the manufacturer's warranty.

Input Select Menu

The **INPUT SELECT** menu will allow any or all of the D12's channels to be configured among six options:

This example is with **Channel 1** selected.



Channel 1 Selected

- **Input 1 Direct**: This is the default, Channel's audio is taken from audio input 1
- **Input 1 + 2 Mono Direct**: Channel's audio is the sum of audio input 1 and 2 (Mono)
- **Input 1 Bus A**: Channel's audio is taken from audio input 1 which is Bus A
- **Input 1 + 2 Mono Bus A**: Channel's audio is the sum of audio input 1 and 2 (Mono) which is Bus A
- **Input 7 Bus B**: Channel's audio is taken from audio input 7 which is Bus B
- **Input 7 + 8 Mono Bus B**: Channel's audio is the sum of audio input 7 and 8 (Mono) which is Bus B

Notice that **Input 1 Direct** is audio input 1 which is the same as **Input 1 Bus A**. Also notice that **Input 1 + 2 Mono Direct** is audio input 1 and 2 summed which is the same as **Input 1 + 2 Mono Bus A**. This is because the selected channel is channel 1. To help clarify this, see the next example with channel 5 selected.

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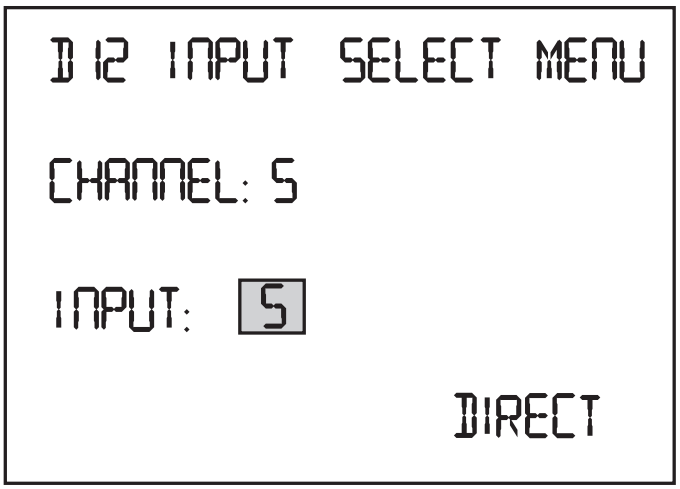
This example is with **Channel 5** selected.

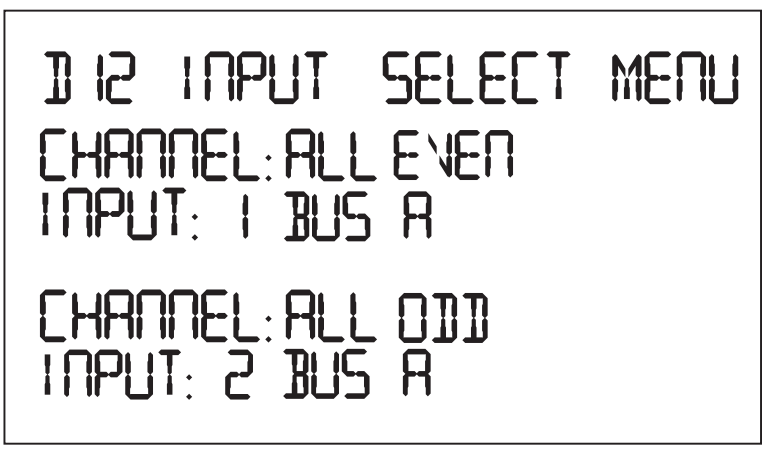


Channel 5 Selected

- **Input 5 Direct**: Default, Channel's audio is taken from audio input 5
- **Input 5 + 6 Mono Direct**: Channel's audio is the sum of audio input 5 and 6 (Mono)
- **Input 1 Bus A:** Channel's audio is taken from audio input 1 which is Bus A
- **Input 1 + 2 Mono Bus A:** Channel's audio is the sum of audio input 1 and 2 (Mono) which is Bus A
- **Input 7 Bus B**: Channel's audio is taken from audio input 7 which is Bus B
- **Input 7 + 8 Mono Bus B**: Channel's audio is the sum of audio input 7 and 8 (Mono) which is Bus B

This example is with **Channel ALL EVEN** and **Channel ALL ODD** selected. Instead of a single channel's audio being affected like the previous examples demonstrated, all 12 channels are being affected.

- All of the Odd channels (1, 3, 5, 7, 9, 11) are taken from Audio Input 1 which is Bus A and All of the Even channels (2, 4, 6, 8, 10, 12) are taken from audio input 2 which is Bus A



All Channel Selected

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- Input 1 + 2 Mono Bus A: All channel's audio is the sum of audio input 1 and 2 (Mono) which is Bus A
- Input Direct: Audio Input 1 is routed to channel 1, Audio Input 2 is routed to channel 2, etc...Audio Input 12 is routed to channel 12.
- Direct Mono: Audio Input 1 + 2 summed (Mono) is routed to channels 1 and 2, Audio Input 3 + 4 summed (Mono) is routed to channels 3 and 4 etc... Audio Input 11 + 12 summed (Mono) is routed to channels 11 and 12,

Press the **Channel** button to change the channel.
Press **UP** and **DOWN** buttons to change the option.
Press the **MENU** button to cycle to the next menu.

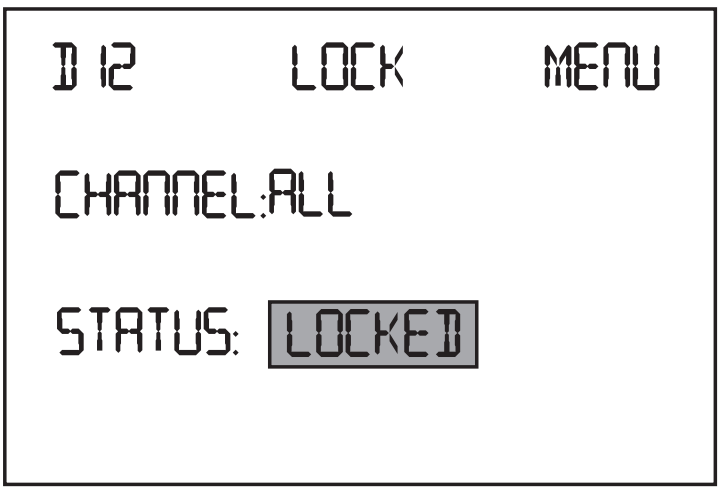
Channel Lock Menu

This menu allows any or all channels to be locked or unlocked after initial set-up selections have been determined.

When locked, channel settings can not be altered even by IR Commands in ELAN mode.

IndIvidual channels 1 - 12 options are **LOCKED** or **UNLOCKED**.

All channel optons are **MIXED**, **LOCKED**, or **UNLOCKED**. **MIXED** means that some channels are locked and some channels are not locked.



Channel Lock Menu

Press the **Channel** button to change the channel.
Press the **UP** and **DOWN** buttons to **LOCK** or **UNLOCK** the selected channel.
Press the **MENU** button to cycle to the next menu.

ACE Menu

When **ACE** (Automatic Clipping Eliminator) is set to **ON**, the amplified output is continuously monitored for signal clipping. Extremely fast transients are ignored but if it sees a consistent clipping trend, it turns the respective channel down by one increment. This action is repeated until no more clipping is detected for five seconds. After 5 seconds it gradually increases the gain of the channel back to its last setting.

ACE will be displayed on the **Volume** screen. **See "Volume Menu" on page 6.**

IndIvidual channels 1 - 12 options are **ON** or **OFF**.

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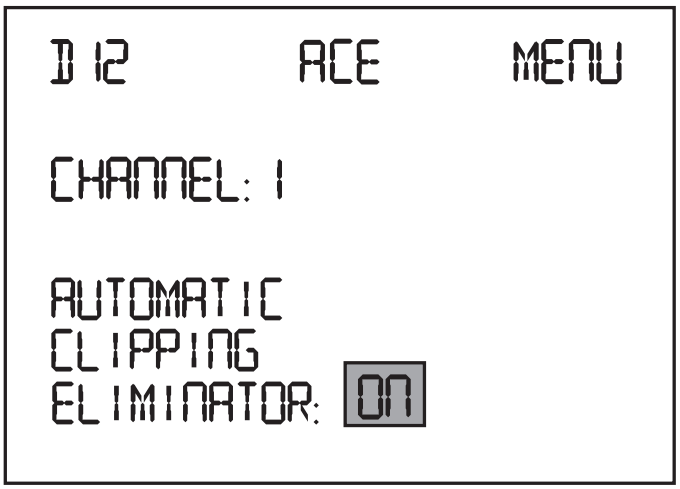
All channel optons are **MIXED**, **ON** or **OFF.** **MIXED** means that some channels are **ON** and some channels are **OFF**.



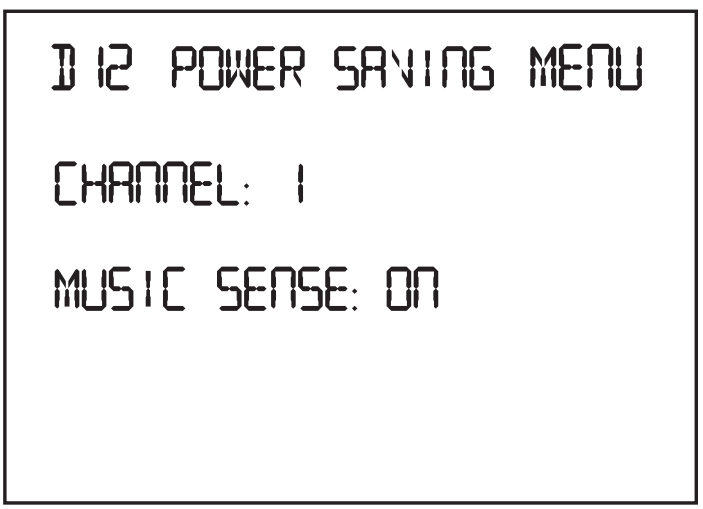
Channel ACE Menu

Press the **Channel** button to change the channel.
Press **UP** and **DOWN** buttons to turn the **ACE ON** or **OFF**.
Press the **MENU** button to cycle to the next menu.

Power Saving Menu

This menu is only visible when the **Utility's Power Saving Mode** menu is set to **Per Channel**.

See "Power Saving Mode" on page 15.



Power Saving

Press the **Channel** button to change the channel.
Press **UP** and **DOWN** buttons to change the **Music Sense ON** or **Off**.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

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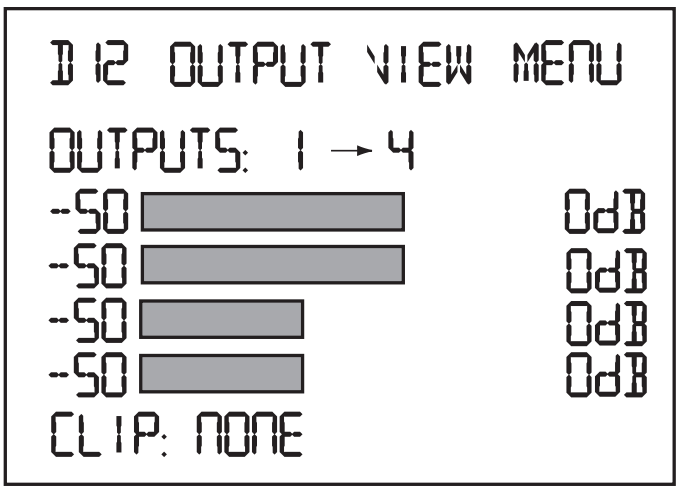
Output View Menu

This menu selection displays four bar graphs which correspond to the current **Output Channel Levels**.

A clipping indicator is located in the bottom left of the screen. Any channels that are currently clipping will be displayed.



Output View Menu

Press the **Channel** button to change the channel by one.
Press the **UP** and **DOWN** buttons to change the channel by four.
Press the **MENU** button to cycle to the next menu.

Utility Menu

The D12 features a **Utility** sub-menu that is designed to provide easy access to D12 operational functions.

Whenever the LCD times out, the **Utility** menu resets to display the **Operating Mode** screen first. However, if you navigate to the **LCD Brightness** screen in the **Utility** menu by pressing **Channel** button and then navigate through the **Main** menu by pressing **Menu** button without an LCD timeout, the first **Utility** screen displayed will be **LCD Brightness**.

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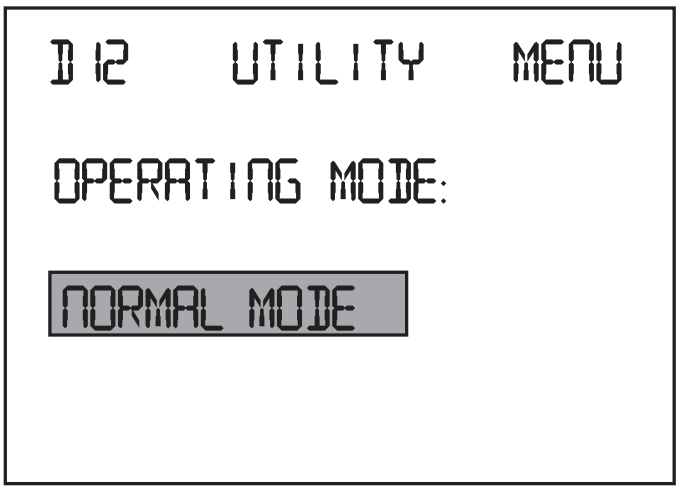
Operating Mode

Places the D12 in either **Normal Mode** or **ELAN Mode.**

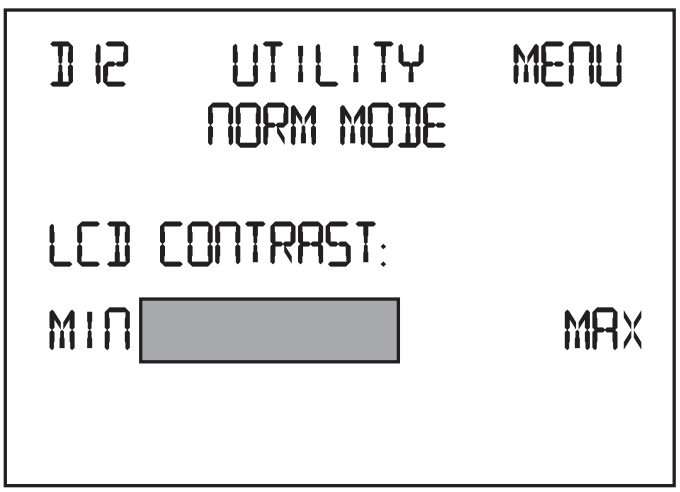


Utility Menu-Operating Mode

Press **UP** and **DOWN** buttons to select **Normal Mode** or **ELAN Mode**.
Press the **Channel** button to cycle to the next **Utility** menu.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

LCD Contrast

This menu adjust the **Contast** of the front panel graphical **LCD**.



LCD Contrast Menu

Press **UP** and **DOWN** buttons to change the **Contrast**.
Press the **Channel** button to cycle to the next **Utility** menu.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

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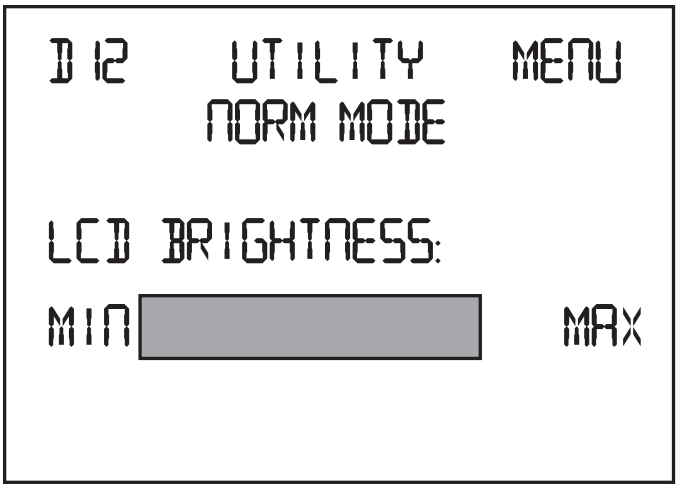
LCD Brightness

This menu adjust the **Brightness** of the front panel graphical **LCD**.



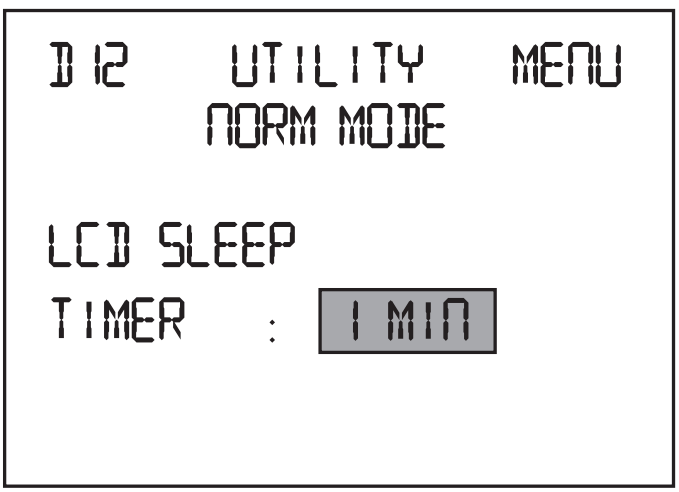
LCD Brightness Menu

Press **UP** and **DOWN** buttons to change the **LCD BRIGHTNESS**.
Press the **Channel** button to cycle to the next **Utility** menu.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

LCD Sleep Timer

This menu setting determines the amount of time that the front panel graphical LCD display and backlight are active after a front panel button press.

The factory default setting is **1 minute**.



LCD Sleep Timer Menu

Press **UP** and **DOWN** buttons to change the **LCD SLEEP TIMER**.
Press the **Channel** button to cycle to the next **Utility** menu.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

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Power Saving Mode

The **Power Saving** mode uses **Music Sense** detection to determine if audio signals are present. If signals are not present, the enabled amplifier channels power **OFF**. When a source signal is detected the channels power **ON**.

The factory default is **ALL ENABLED**.

When **ALL ENABLED** is selected, any channel will shut itself off after 5 minutes when it no longer detects audio.

ALL ENABLED examples:

- If a zone is turned off on an ELAN's system controller and the system controller's triggers are not connected, the D12's channels will turn off after 5 minutes of not detecting audio.
- If a zone is muted on the ELAN's system controller, the D12's channels will turn off after 5 minutes of not detecting audio.

When the **PER Channel** setting is selected, a hidden **MAIN** menu appears called **POWER SAVING MENU**. This allows **Music Sense** to be selected for **EACH** channel or **ALL** channels.

See "Power Saving Menu" on page 11.

PER Channel examples:

- The D12 may drop out in **ALL ENABLED** mode if the audio being sent to it is at a soft level (15%). This level may be audible to the human ear but the D12 thinks it is noise. Since the D12 thinks it is noise, the channel is turned off after 5 minutes. To prevent the channel from dropping out, place the **POWER SAVING MODE** in **PER Channel**. Then go to **POWER SAVING Menu** and set the channel to **Music Sense OFF**. With **Music Sense Off**, the D12 will only turn off the channel with Trigger inputs.

See "Triggers" on page 28.

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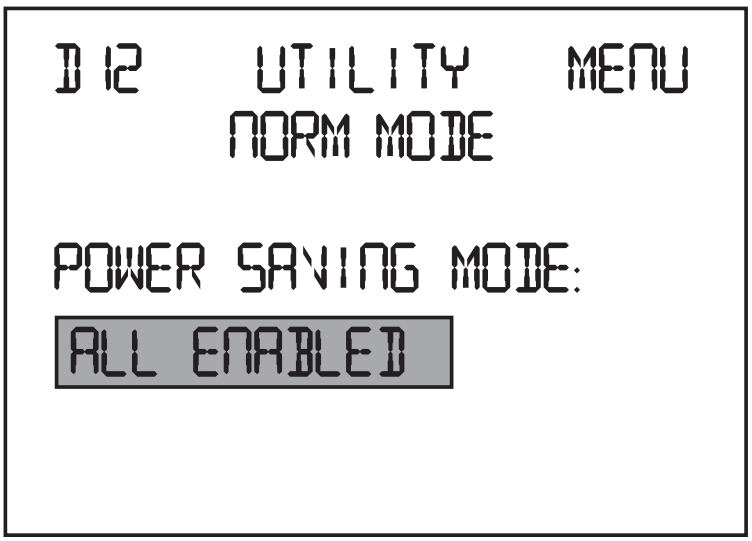

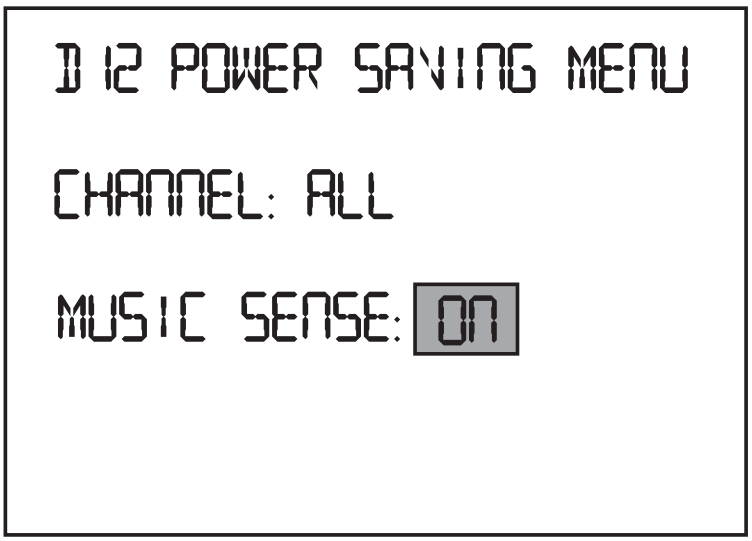

Power Saving Mode Menus

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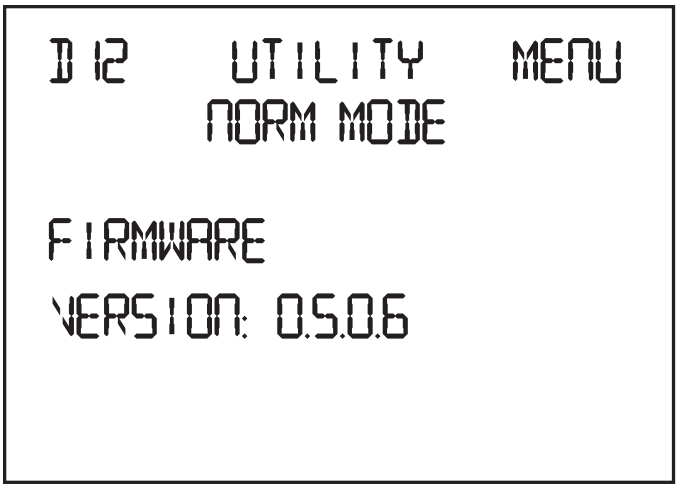
Firmware Version

This menu displays the current **Firmware Version** presently downloaded to the D12 chassis.

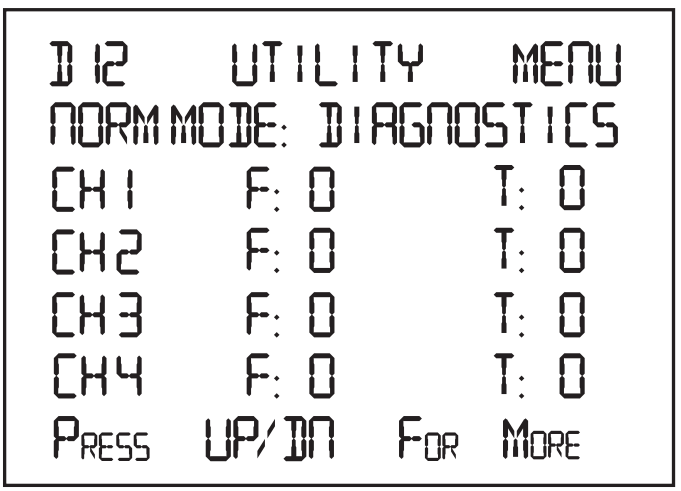


Firmware Version Menu

Press the **Channel** button to cycle to the next **Utility** menu.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

Diagnostics Menu

The **Diagnostics** menu provides easy access to current D12 system status. Diagnostics information displayed on the D12's front panel include the number of times the unit has suffered fault conditions (**F**) and high temperatures (**T**) for each channel.
A Fault (**F**) problem will occur when a channel is shorted or the impedance drops below 4 ohms.
A Temperature (**T**) problem will occur when the temperature rises above 125C.



Diagnostics Menu

Press **UP** and **DOWN** buttons to change to other channels.
Press the **Channel** button to cycle to the next **Utility** menu.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

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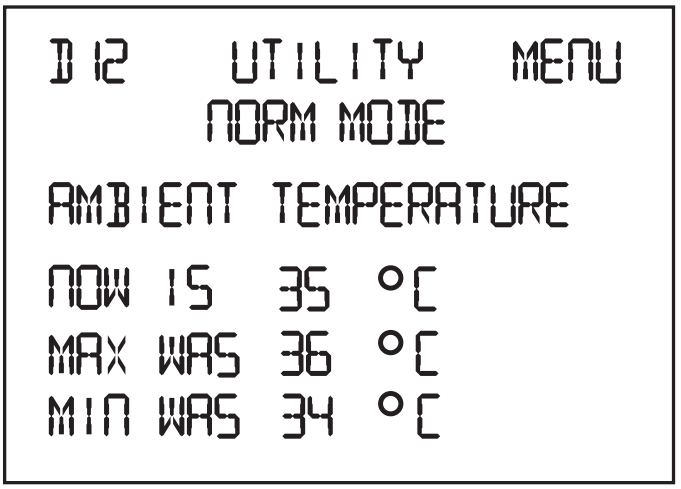
Ambient Temperature

This menu displays the current **AMBIENT TEMPERATURE** of the D12 chassis as well as minimum and maximum temperatures that are logged in memory.



Ambient Temperature Menu

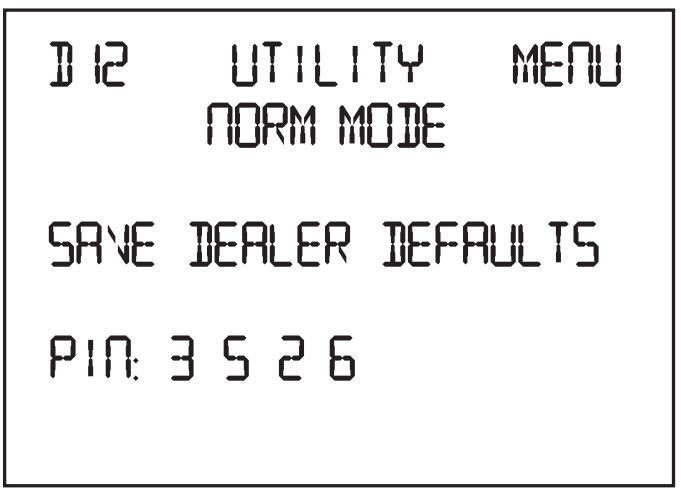
Press **UP** and **DOWN** buttons to change from **Celsius** to **Fahrenheit**.
Press the **Channel** button to cycle to the next **Utility** menu.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

Save Dealer Defaults

A 4 digit PIN code may be used to save all **Dealer Default** settings. This PIN is set to **3526** and can not be changed.

To save the current settings:

Press **UP** and **DOWN** buttons to change the digits to **3526**.
Press the **Channel** button to cycle to the next digit.
To advance to the next menu, press the **Channel** button repeatedly.



Save Defaults/PIN Menu

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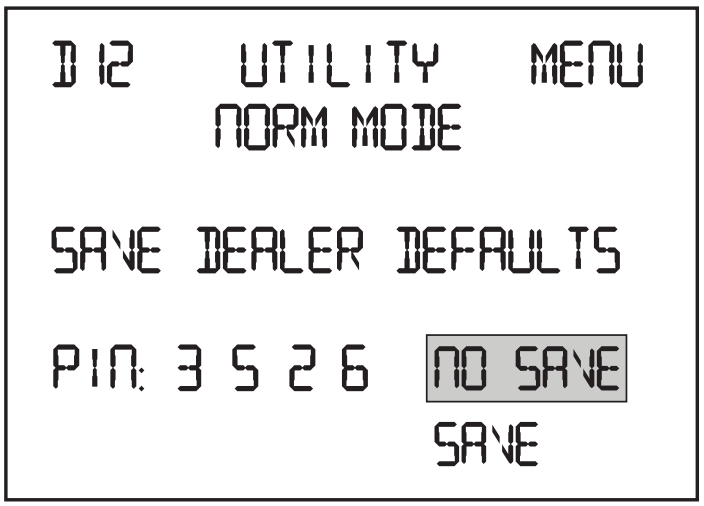
Pressing the **Channel** button on the fourth digit when 3526 was added will display:



Save Dealer Defaults Save/No Save

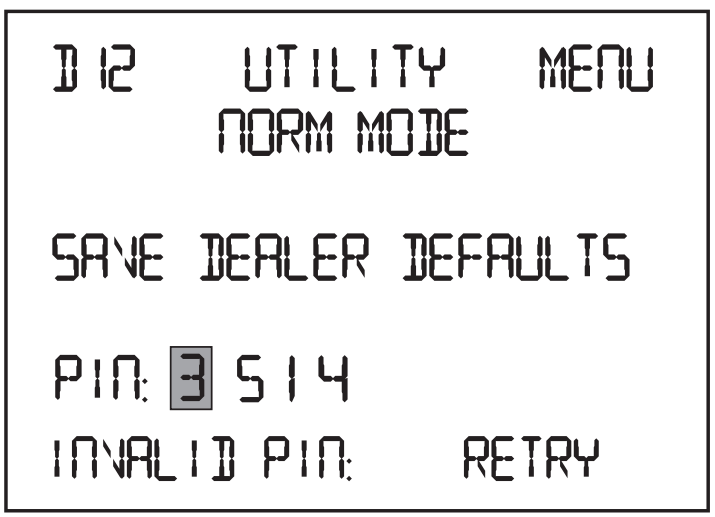
Press **UP** and **DOWN** buttons to select **SAVE** or **NO SAVE**.
Press the **Channel** button to commit the selection and cycle to the next **Utility** menu.
Press the **Menu** button to commit the selection and cycle to the beginning of the **Main** menu.

Pressing the **Channel** button on the fourth digit when 3526 was NOT entered:

Press **UP** and **DOWN** buttons to select **SAVE** or **NO SAVE**.

Press the **Channel** button when **NO SAVE** is the selection will cycle to the next **Utility** menu.

Press the **Channel** button when **SAVE** is the selection will display the following for two seconds and then hight-light the first digit so the correct pin can be entered:



Saving Dealer PIN: Retry

Press the **Menu** button to **CANCEL** and cycle to the beginning of the **Main** menu.

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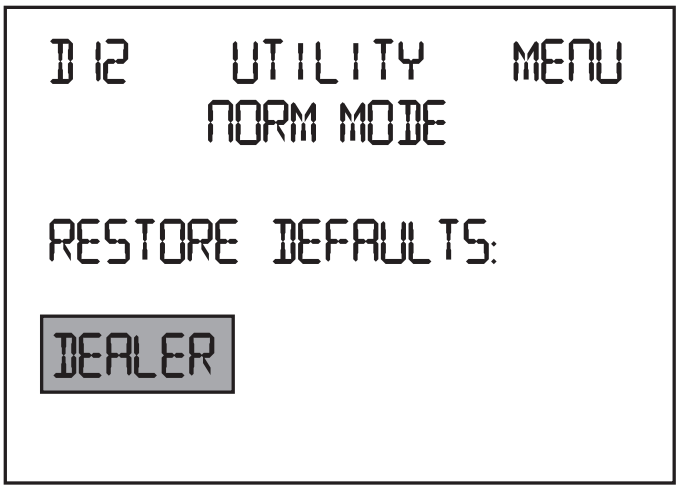
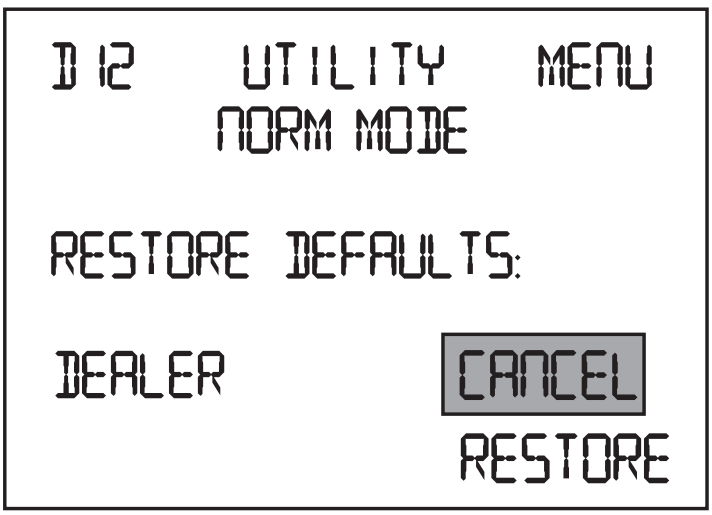
Restore Defaults

This menu allows the restoration of amplifier settings.
The options are **DO NOT RESTORE**, **FACTORY**, and **DEALER**.



Restore Defaults Menu

Press **UP** and **DOWN** buttons to change **Options**.
Press the **Channel** button to display **Cancel** and **Save**.



Restore Defaults Menu Cancel/Restore

Press **UP** and **DOWN** buttons to select **CANCEL** or ***Restore***.

Press the **Channel** button to commit the selection.

If **Restore** is selected the D12 will immediately restore the selected defaults.

Press the **Menu** button to cycle to the beginning of the **Main** menu.

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ELAN Mode

The **ELAN** mode menu items are the same except for the following additional menu items that are after Output View:

Absolute Max Volume, **Min Turn On Volume**, **and Max Turn On Volume**.

Amplifier Status, Volume, Input Select, Lock, Limiter, Power Saving, Output View, **Absolute Max Volume**, **Min Turn On Volume**, **and Max Turn On Volume** and Utility

The **Utility** mode menu items are the same except for the following additional menu items that are after **Operating Mode**:

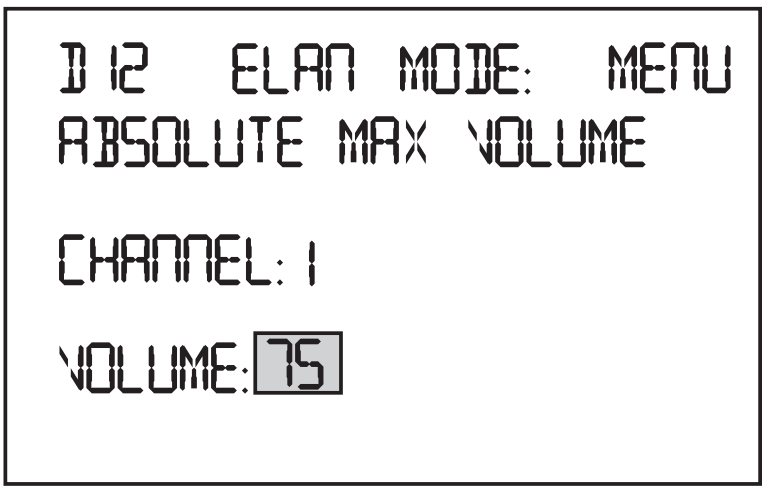
VIA!NET Address and **Channel Range**.

Operating Mode, **VIA!NET Address**, **Channel Range**, LCD Contrast, LCD Brightness, LCD Sleep Timer, Power Saving Mode, Firmware Version, Diagnostics, Ambient Temperature, Save Dealer Defaults, and Restore Defaults.

Absolute Max Volume Menu

This will not allow channel gain adjustments for individual channels or All channels to be set higher than this setting. Channel gain adjustments are performed by following the **Volume** menu steps or by using IR Commands.

See "Volume Menu" on page 6.



Absolute Max Volume Menu

Press the **Channel** button to change the channel.
Press **UP** and **DOWN** buttons to select the **Absolute Max Volume**.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

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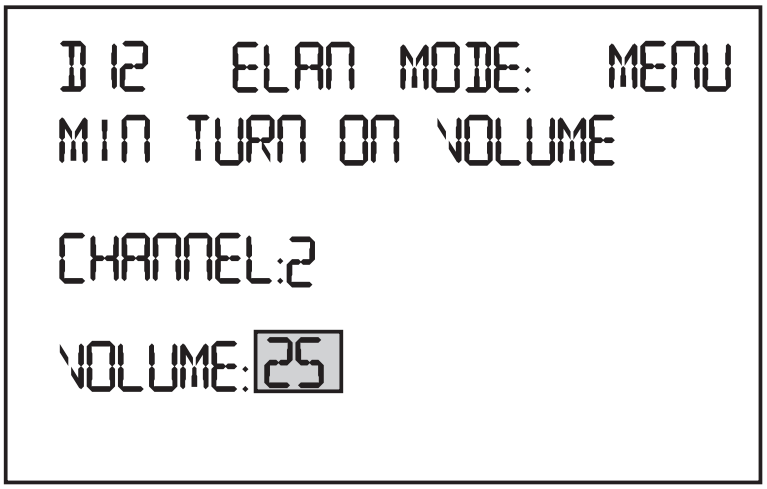
Minimum Turn-On Volume Menu

This will allow an **individual channel** or **All** channels to turn on to a specific or predetermined volume level if the volume level prior to turning the channel off is lower than this settings.

Channels can be turned off or on by **IR Commands**, **from a Trigger Input** or by turning the **Power Switch OFF**.



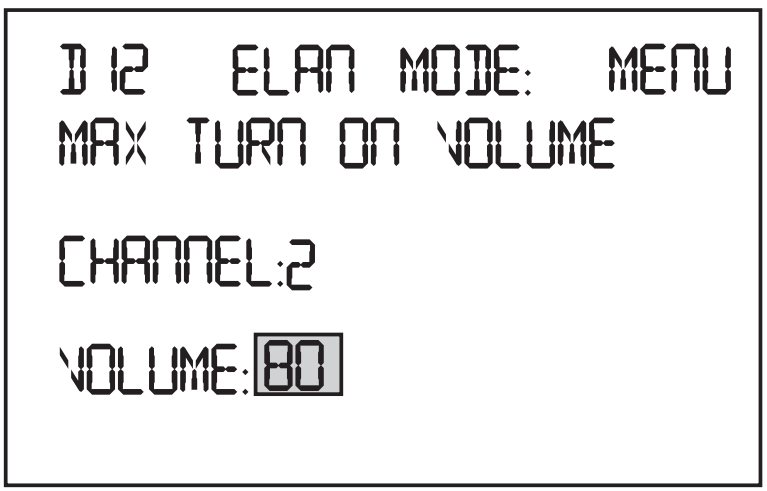
Min Turn-On Volume Menu

Press the **Channel** button to change the channel.
Press **UP** and **DOWN** buttons to select the **Minimum Turn-On Volume**.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

Maximum Turn-On Volume Menu

This will allow an **individual channel** or **All** channels to turn on to a specific volume level if the volume level prior to turning the channel off is higher than this settings.

Channels can be turned off by **IR Commands**, **from a Trigger Input** or by turning the **Power Switch OFF**.



Max Turn-On Volume Menu

Press the **Channel** button to change the channel.
Press **UP** and **DOWN** buttons to select the **Maximum Turn-On Volume**.

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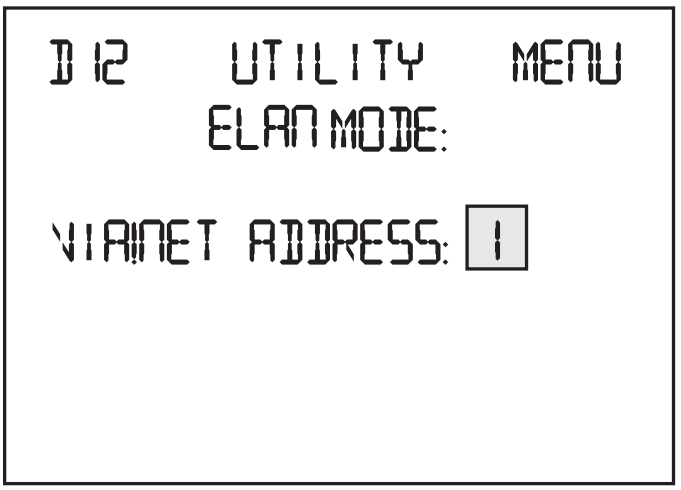
Press the **Menu** button to cycle to the beginning of the **Main** menu.

VIA!NET Address

This menu sets the **VIA!NET Address** for the amplifier chassis as 1 of 16 possible addresses.
The default setting is **0**.
The options are **0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E,** and **F** providing a total of 16 chassis.
The amplifier will need to be set to an I.D. that is not already being used by another 'D Series' amplifier.

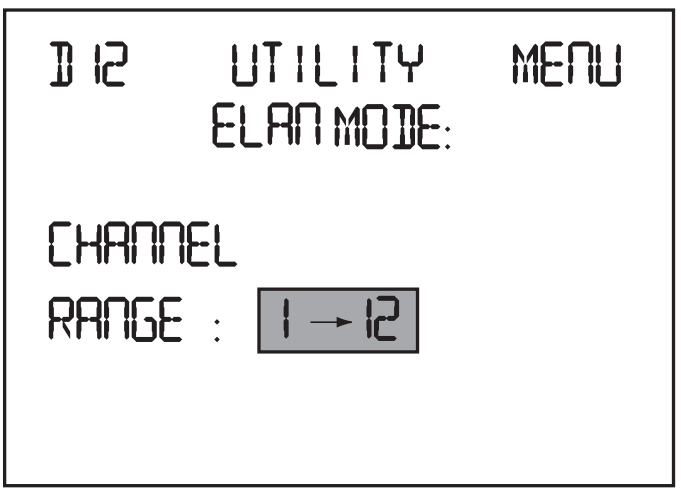


VIA!NET Address Menu

Press **UP** and **DOWN** buttons to select the **VIA!NET ADDRESS**.
Press the **Channel** button to cycle to the next **Utility** menu.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

Channel Range

This menu sets the IR codes to be processed based on the channel numbers selected.
The default range is **1-12**.
16 chassis can be used for a total of 192 channels.
D12s can have the same channel range settings if you want the D12s to respond to the same IR Commands.



Channel Range Menu

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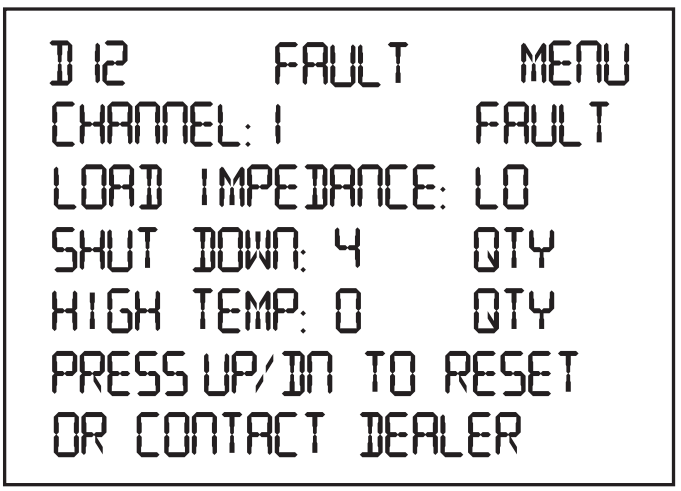
Press **UP** and **DOWN** buttons to select the **Channel Range**.
Press the **Channel** button to cycle to the next **Utility** menu.
Press the **Menu** button to cycle to the beginning of the **Main** menu.

Fault Menu (For both Normal and ELAN Modes)

If a fault condition should occur, such as a shorted speaker wire or an overheating issue, the **FAULT** menu will appear on the **LCD**. This message screen will remain in place until the fault condition has been attended to and the amplifier has been reset or repaired.

Press the **UP** or **DOWN** buttons to reset the amplifier, if the amplifier doesn't reset, contact your dealer.



Fault Menu

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Connections

The D12 has many rear panel connections so it is important to label cables with their destination or source correctly.

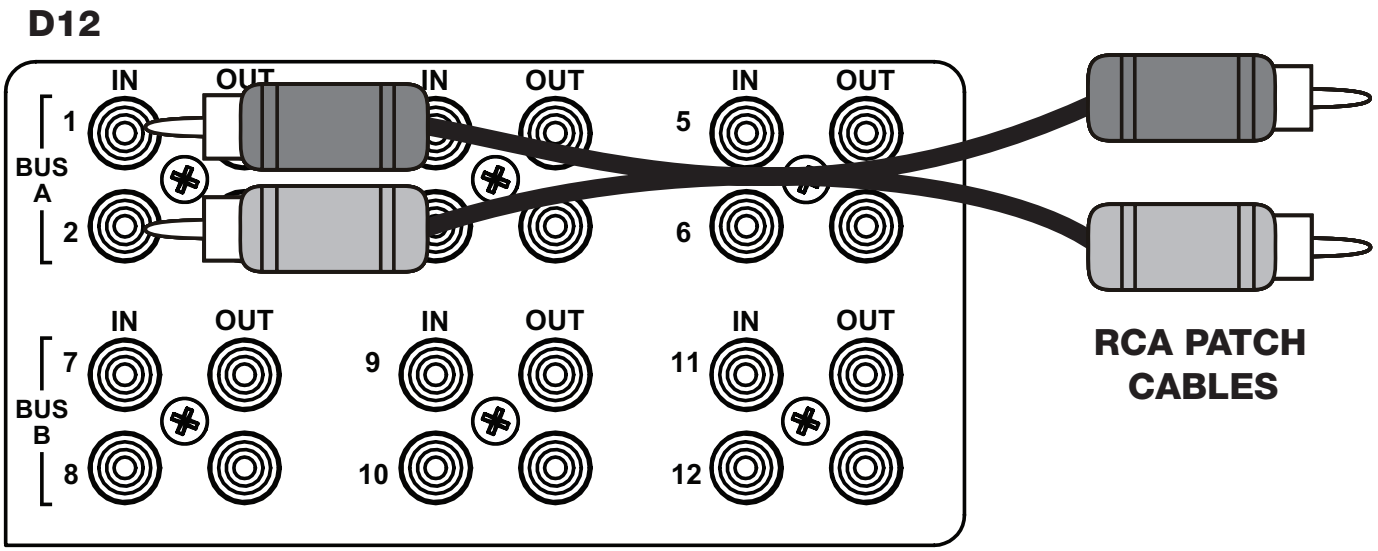
Use high quality line level RCA connector type cables for source connections to ensure the lowest possible noise and best sound performance.

For most applications, use 16AWG 2 conductor speaker cable. For wiring runs longer than 80 ft., it is recommended to use 14AWG 2 conductor speaker cable. The D12's high quality, gold plated 5-way binding post will accommodate speaker cabling sizes up to 12AWG. Attaching banana plugs will enable the connection of larger cable sizes.

A 3.5mm mono interconnect cable may be used for amplifier and systems triggering.

Line Level Audio Inputs

Connect line level input audio by inserting RCA cable into the audio input connectors.



Line Level Direct Inputs

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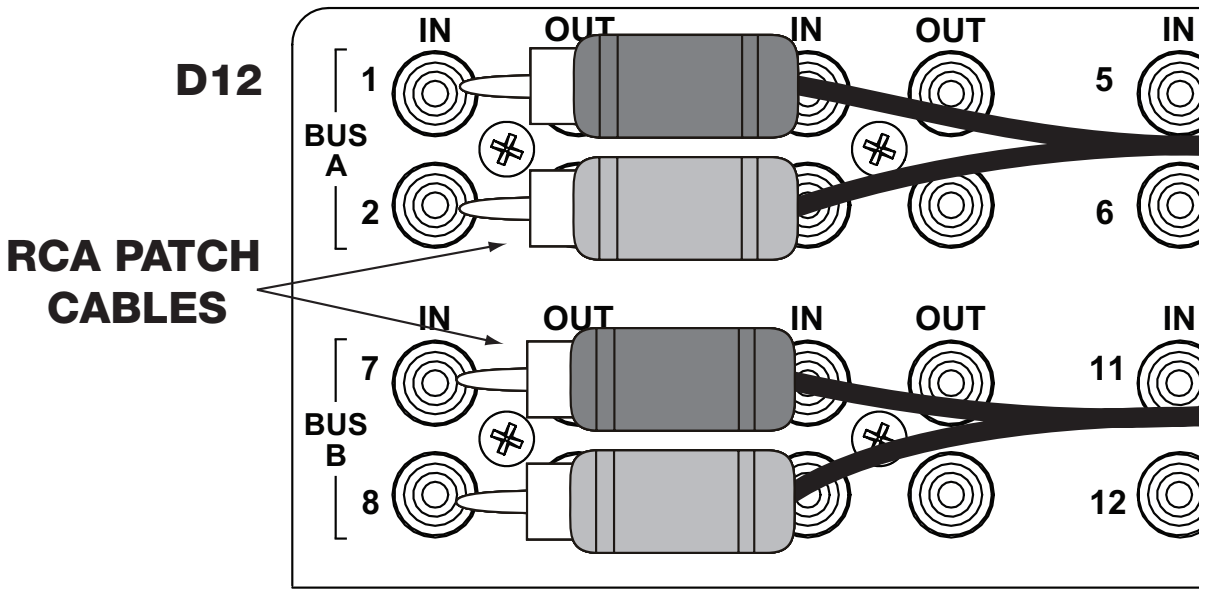
BUS Inputs

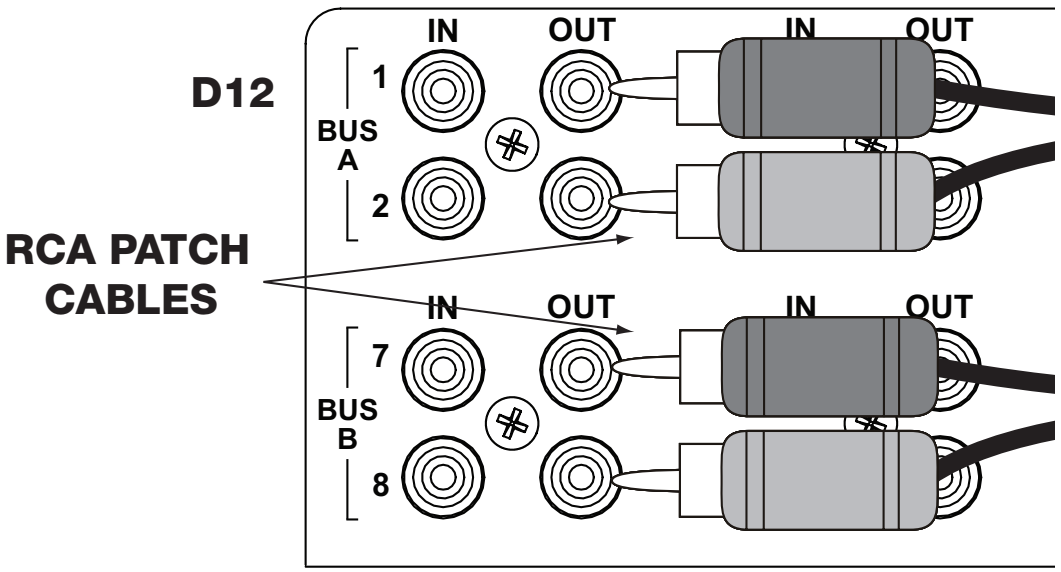
The D12 BUS Inputs A and B enables custom configuration of listening areas. Large or irregular shaped rooms may be configured for both mono and stereo as coverage is needed. Hallways, passageways, bathrooms and laundry rooms are the most popular areas that can benefit from a mono BUS application. BUS Input application examples are shown in the System Design section of this manual.



BUS Inputs

BUS Outputs

BUS audio outputs enable connection of additional amplifiers to allow further system expansion. The audio **IN** audio input 1 is buffered and routed out the audio output 1 **OUT** connector, input 2 to output 2 and so forth.



BUS Outputs

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Speaker Binding Post

The D12 is equipped with gold plated, 5-way speaker binding post. This will allow for five methods of speaker wire termination; bare wire, spade lug, pin, single banana and dual banana plug. Label all speaker wires with their destination to ensure easy configuration. To attach speaker wires use the following method:

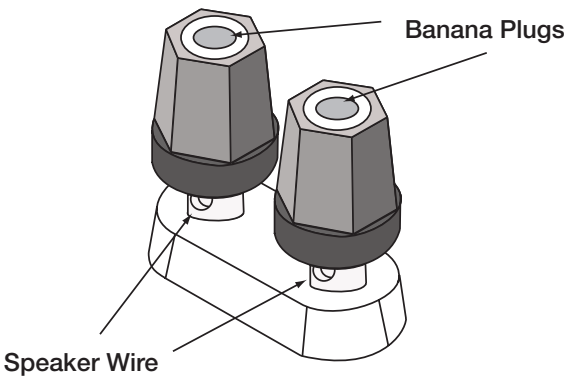
1. Carefully split the speaker wire insulation at least two inches.

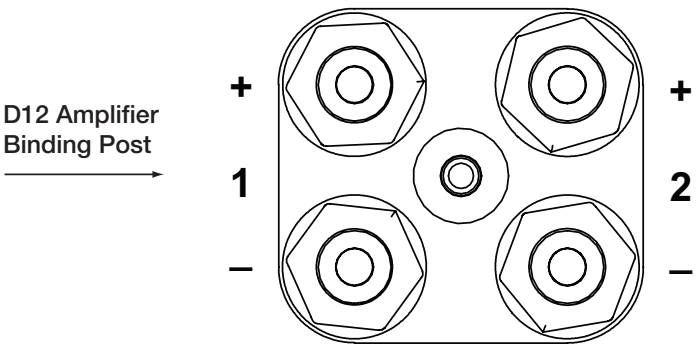
2. Strip 1/2 inch of the insulation from the speaker wire conductor exposing the bare wire.

3.Twist the wire strands of each conductor, if using banana plugs, attach wire to banana plug observing polarity.

4. If using banana plug; insert plug ends into binding post observing correct polarity. If using the bare wire method; loosen red and black binding post caps and insert the bare wire through the hole in the post. Tighten the knob until the wire is securely clamped.

CAUTION! Speaker Wire connections must be made with the amplifier OFF!





WARNING: Do not allow any strands of the bare speaker wire to touch the Amplifier Chassis or another Connector.

Speaker Binding Post

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Triggers

+12V Trigger Inputs

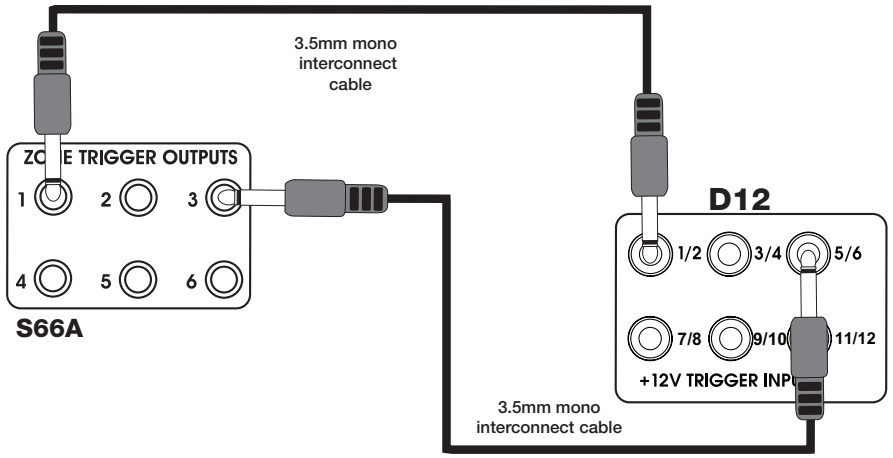
A 3.5mm mono interconnect cable is used for the +12V Trigger Input connection. Each channel pair 1/2, 3/4, 5/6, 78, 9/10, and 11/12 have dedicated triggers. Trigger 1 assigned to channel pair 1/2, trigger 2 assigned to channel pair 3/4 and so forth.

When the trigger is active the channel pairs turn on.

When the trigger is not active the channel pairs turn off.

If no cables are used, the triggers will be turned on by default.

S66A Zone Trigger Outputs to D12 Zone Trigger Inputs (Zones 1 & 3 Shown)



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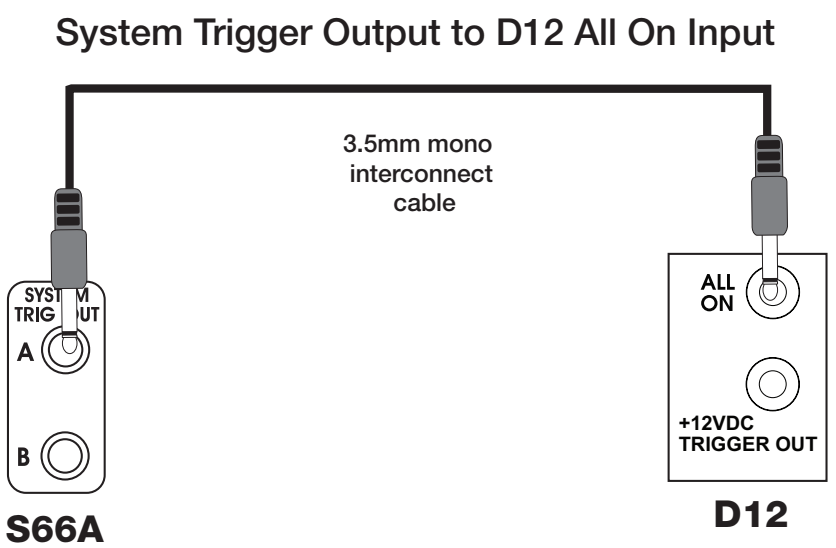
ALL ON Trigger Input

A 3.5mm mono interconnect cable is used for the ALL ON Trigger Input connection. This Turn-On Trigger activates ALL channels.

When the trigger is active all channels turn on.

When the trigger is not active all channels turn off.



ALL ON Trigger Connection

+12VDC Trigger Out

A 3.5mm mono interconnect cable +12VDC Output Trigger is located below the ALL ON Trigger. This allows daisy chained amplifiers to turn on and off.

This voltage is provided when any of the top or first amplifier channel(s) is active or "ON". When all amplifier channels are "OFF", the +12VDC trigger signal is removed or "OFF"

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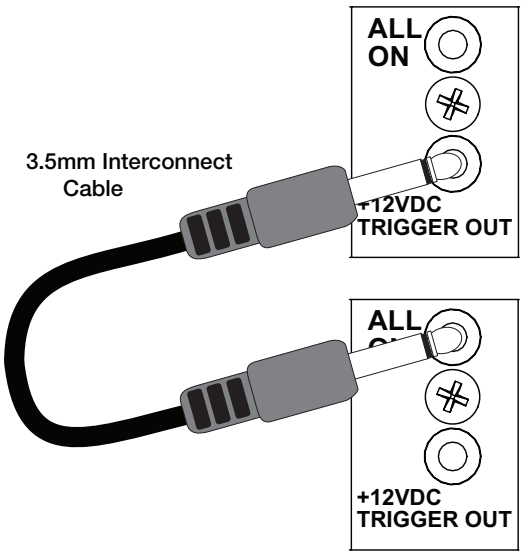
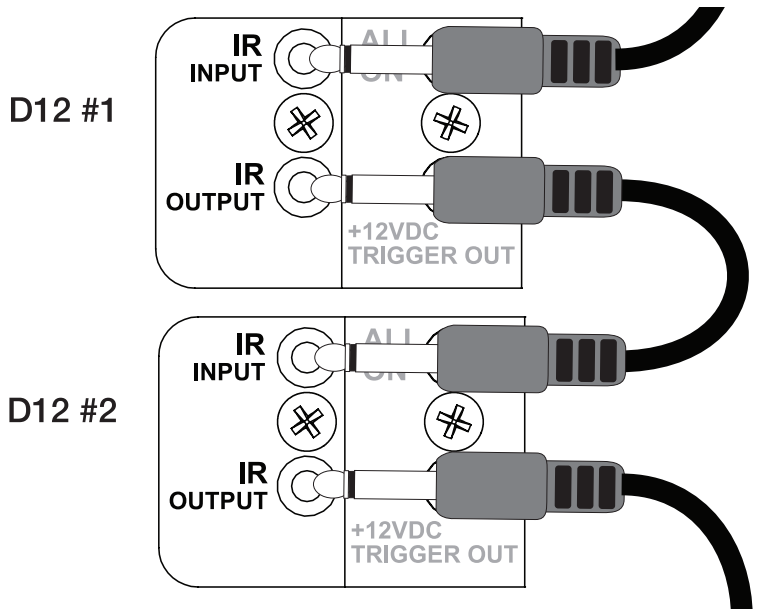


Output Trigger Connection

IR LOOP INPUT/OUTPUT Connections

The 3.5mm mono IR Loop is located beside the **ALL ON** trigger. This loop allows IR commands to be sent to each D12 amplifier that is connected. Before the amplifier will respond to IR Commands, the D12 amplifier must be set to **ELAN Mode**.

See "Operating Mode" on page 13.



IR Loop Connection

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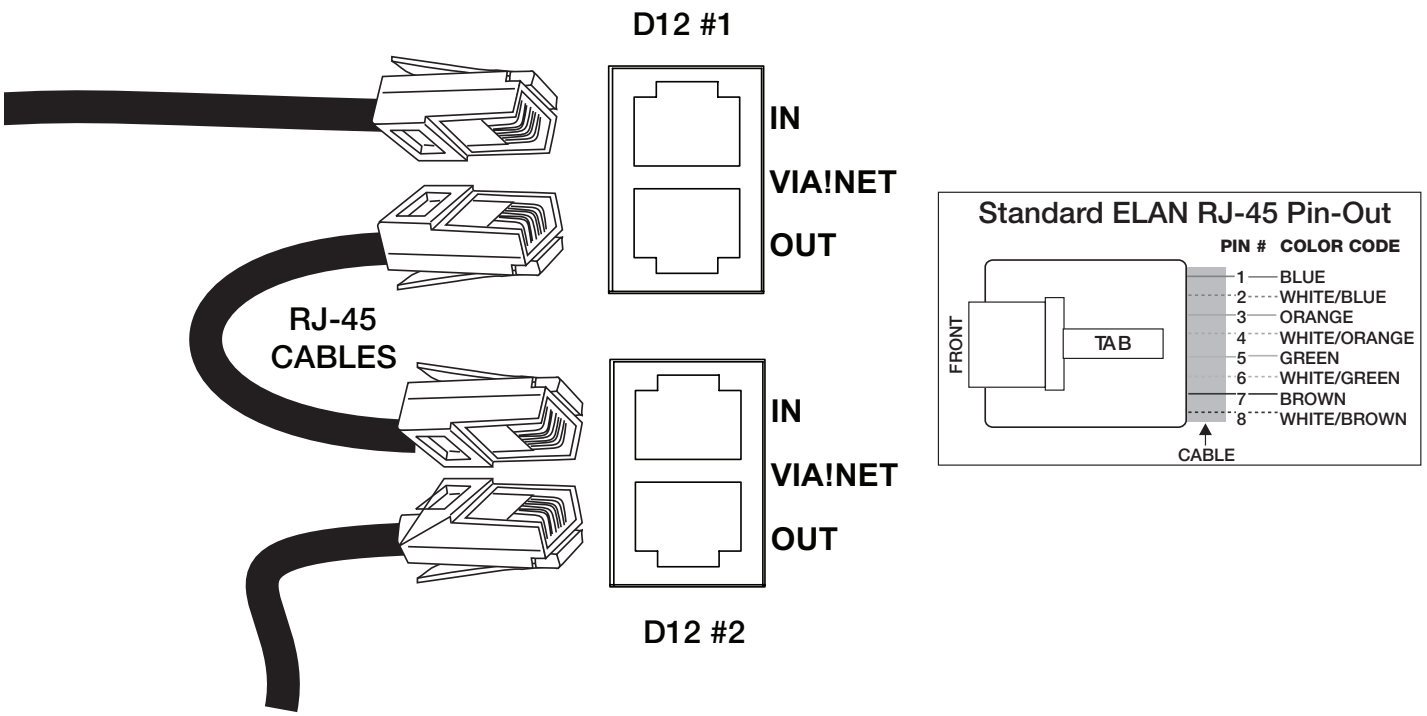
VIA!NET LOOP INPUT/OUTPUT Connections

An RJ-45 VIA!NET Data Bus Loop is provided for feedback and amplifier status. Before the amplifier will provide feedback, the D12 amplifier must be set to **ELAN Mode** with unique VIA!NET addresses for each "D series Amplifier."

See "Operating Mode" on page 13.



VIA!NET Data Loop

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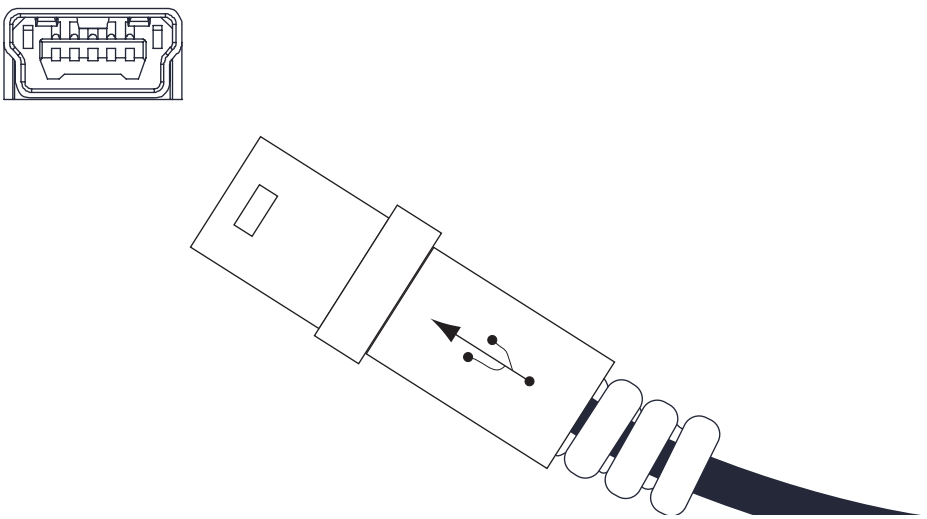
USB Connector

Used to update and configure the D12 firmware.

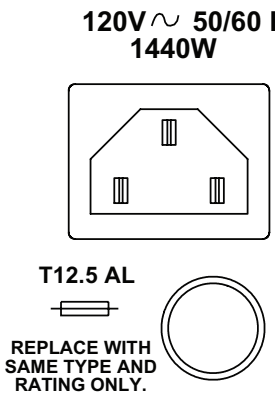
Note: A Standard USB-A to USB-Mini-B cable must be utilized for firmware updates and is not included with the D12.



USB Connection

AC Power Connector

A removable IEC compatible AC Power cord is included for connecting the AC Power Connector to 120VAC power.



AC Power Connector

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Applications

Stereo Input with Stereo Output

Standard application

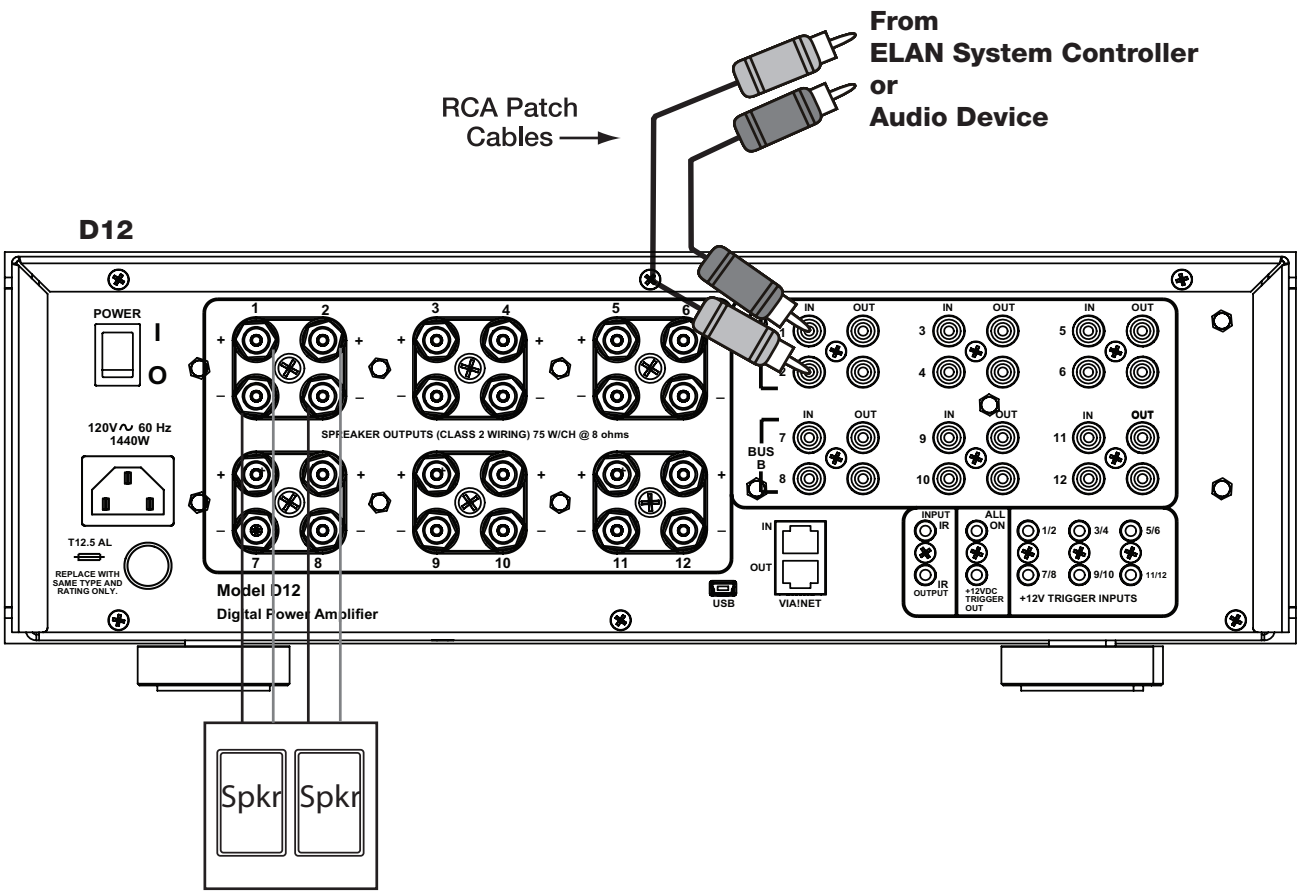
Prerequisites:

Factory defaulted
Normal mode

See
"Restore Defaults" on page 20
"Operating Mode" on page 13.

This example displays a basic stereo setup. Stereo from a source device is connected to audio inputs 1 and 2. Audio input 1 is routed to channel 1 and audio input 2 is routed to channel 2.

Volume is adjusted by the **ELAN System Controller** or by the other **Audio Device**.



Stereo Input

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ELAN Special Application

Prerequisites:

Factory defaulted
ELAN mode

Channel Range

Set to 1 to 12

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13
"Channel Range" on page 23

With the same wiring as before you can control the D12's volume output directly.

Instead of sending ELAN zone volume commands to the ELAN System Controller, send D12's **Channel 1 Volume Up/Down** or **Channel 2 Volume Up/Down** IR Commands to the D12.

ELAN Special Application

Prerequisites:

Factory defaulted
ELAN mode

Channel Range:

Set to 13 to 24

VIA!NET Address:

Set to 0 on first Chassis and set to 1 on second chassis

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13
"Channel Range" on page 23
"VIA!NET Address" on page 23

With the same wiring as before you can control the D12's volume output directly.

Instead of sending ELAN zone volume commands to the ELAN System Controller, send D12's **Channel 13 Volume Up/Down** or **Channel 14 Volume Up/Down** IR Commands to the D12.

Since **Channel Range** is set to **13 - 24**, you must control the channel's volume using different commands. When a D12 is set to 13 to 24, the D12 is the second chassis in a two D12 chassis system.

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Multiple Stereo Inputs

This shows different audio into each audio input. With **Channel Range** set to **Channel All Direct**, **Audio Input 1** is routed to **Channel 1**, **Audio Input 2** is routed to **Channel 2**, etc...and **Audio Input 12** is routed to **Channel 12**.

Prerequisites:

Factory defaulted
Normal or ELAN mode

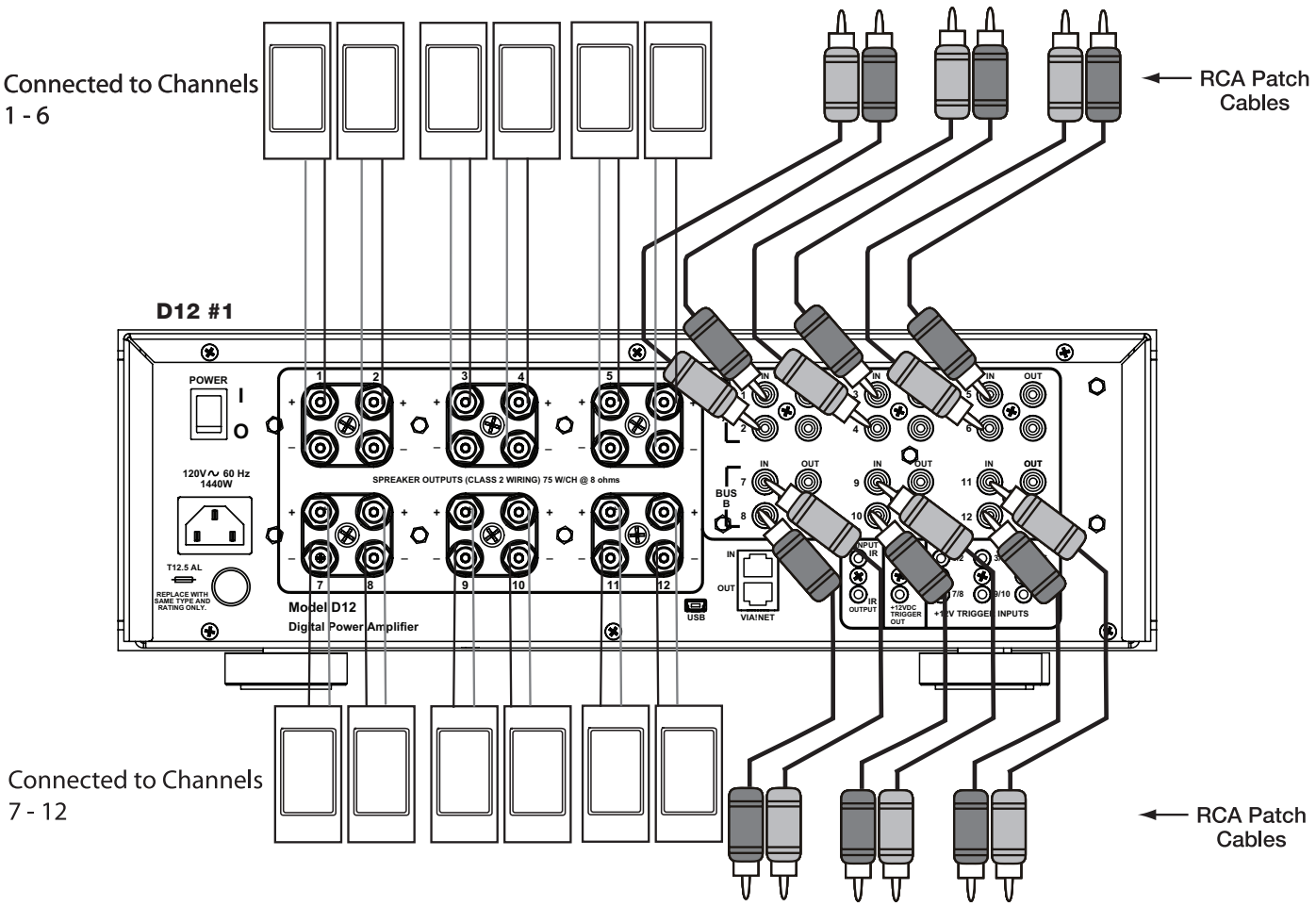
Channel Range

Set to 1 to 12

Input Select Menu:

Channel Direct

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13
"Input Select Menu" on page 8



Multiple Stereo Inputs

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Single Stereo Input with Stereo and Mono Output

ELAN Legacy Standard application

This is how you would have set up ELAN's previous amplifiers. This is **NOT** how ELAN recommends utilizing the **D12**. This is being shown to demonstrate the difference in legacy amplifiers and the **D12**. **See "ELAN Special Application" on page 37** to see how the D12 should be used for this application.

Prerequisites:

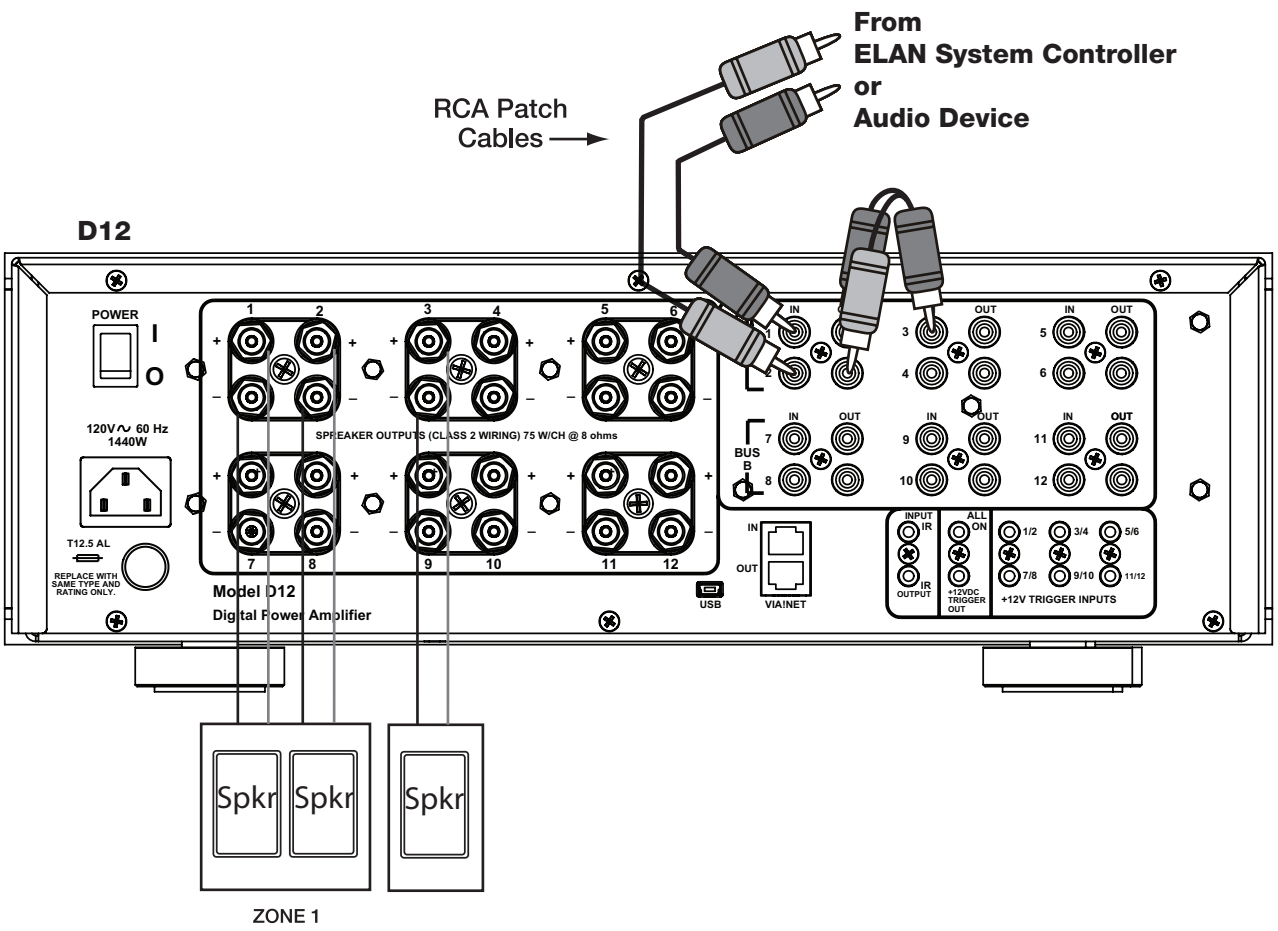
Factory defaulted
Normal or ELAN mode

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13

This example displays a basic stereo/mono setup. Stereo from a source device is connected to audio inputs 1 and 2. Audio Inputs 1 and 2 buffered loop outputs are then summed using a Y cable (Mono) and connected to audio input 3.

Audio input 1 is routed to channel 1, audio input 2 is routed to channel 2 and audio input 3 is routed to channel 3.

Volume is adjusted by the **ELAN System Controller** or by the other **Audio Device**. Increasing or decreasing the volume increases stereo channels 1 and 2 and mono channel 3.



Stereo/Mono Using a Y-cable

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ELAN Special Application

Prerequisites:

Factory defaulted
Normal or ELAN mode

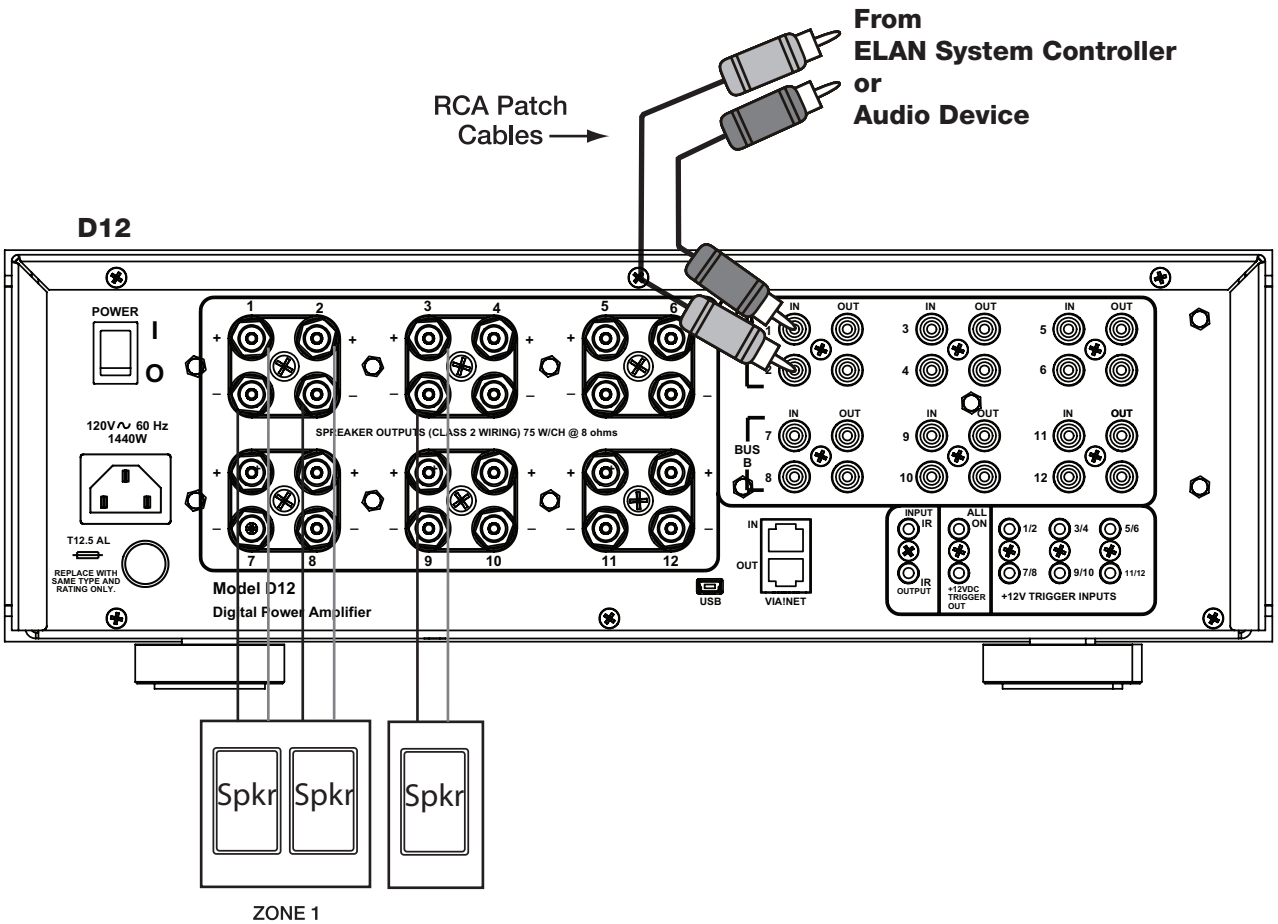
Input Select Menu:

Channel 3 with Input set to 1 + 2 Mono Bus A

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13
"Input Select Menu" on page 8

With the **Input Select Menu** set to the above settings, the D12 sums audio input 1 and 2 (Mono) and routes it to channel 3. The Y cable used in the previous example is not needed.

Volume is adjusted by the **ELAN System Controller** or by the other **Audio Device**. Increasing or decreasing the volume increases stereo channels 1 and 2 and mono channel 3.



Stereo/Mono Using D12 Settings

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Single Stereo Input with Stereo out on Channels 1 - 8

ELAN Legacy Standard application

This is how you would have set up ELAN's previous amplifiers. This is **NOT** how ELAN recommends utilizing the **D12**. This is being shown to demonstrate the difference in legacy amplifiers and the **D12**. **See "ELAN Special Application" on page 39** to see how the D12 should be used for this application.

Prerequisites:

Factory defaulted
Normal or ELAN mode

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13

This example displays a basic stereo setup. Stereo from a source device is connected to audio inputs 1 and 2. Audio Inputs 1 and 2 buffered loop outputs are then connected to audio input 3 and 4. Audio Inputs 3 and 4 buffered loop outputs are then connected to audio inputs 5 and 6. Audio Inputs 5 and 6 buffered loop outputs are then connected to audio inputs 7 and 8.

Audio input 1 is routed to channel 1, audio input 2 is routed to channel 2, audio input 3 is routed to channel 3, audio input 4 is routed to channel 4, audio input 5 is routed to channel 5, audio input 6 is routed to channel 6, audio input 7 is routed to channel 7, and audio input 8 is routed to channel 8.

Volume is adjusted by the **ELAN System Controller** or by the other **Audio Device**. Increasing or decreasing the volume increases stereo channels 1, 2, 3, 4, 5, 6, 7, and 8.

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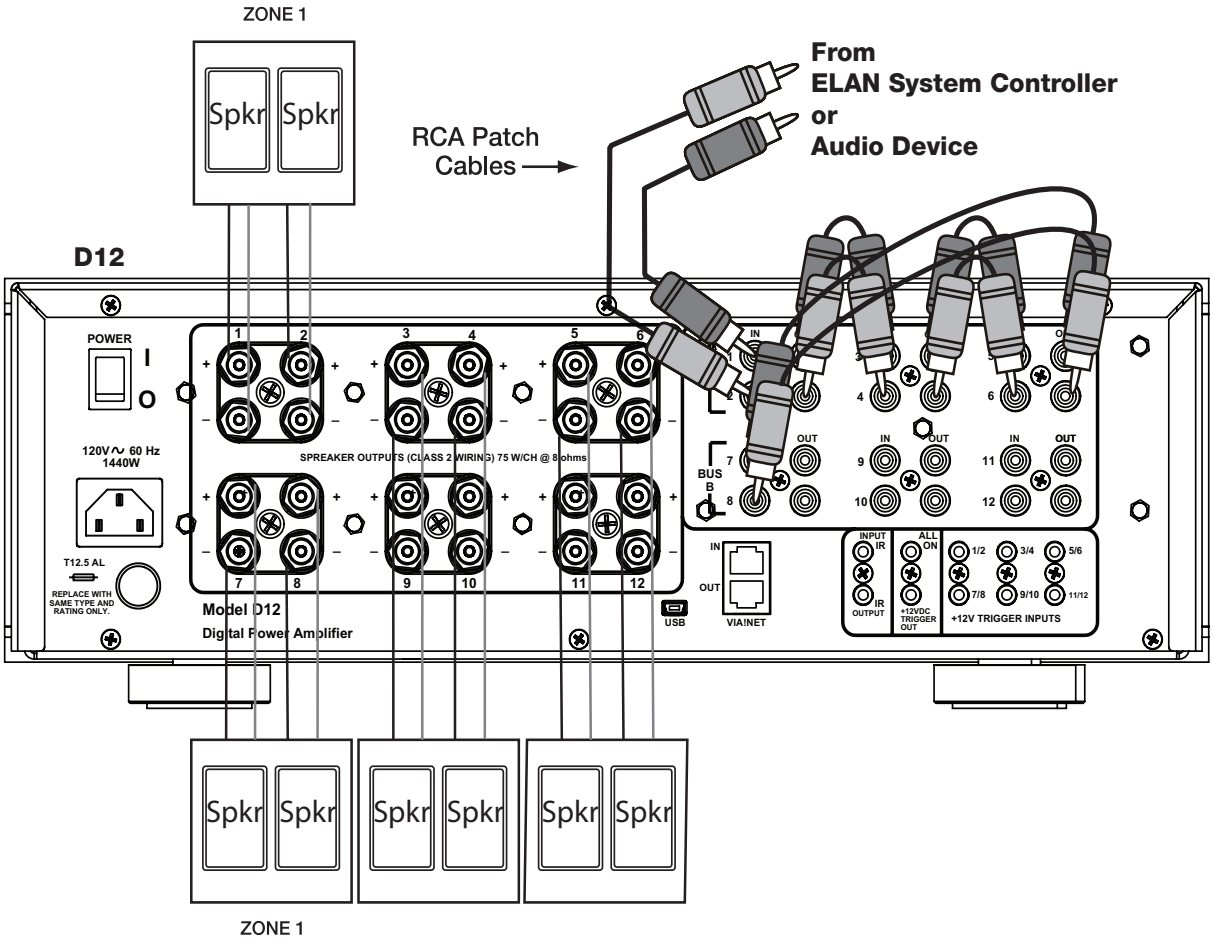

Stereo Bus A Using RCA Cables

ELAN Special Application

Prerequisites:

Factory defaulted:
ELAN or Normal mode

Input Select Menu:

Channel 1 with Input set to 1 Bus A
Channel 2 with Input set to 2 Bus A
Channel 3 with Input set to 1 Bus A
Channel 4 with Input set to 2 Bus A
Channel 5 with Input set to 1 Bus A
Channel 6 with Input set to 2 Bus A
Channel 7 with Input set to 1 Bus A
Channel 8 with Input set to 2 Bus A

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13
"Channel Range" on page 23
"Input Select Menu" on page 8

The RCA jumpers from audio outputs 1 and 2 to audio inputs 3 and 4 and audio outputs 3 and 4 to audio inputs 5 and 6, and audio outputs 5 and 6 to audio inputs 7 and 8 are removed; the routing is performed in the D12.

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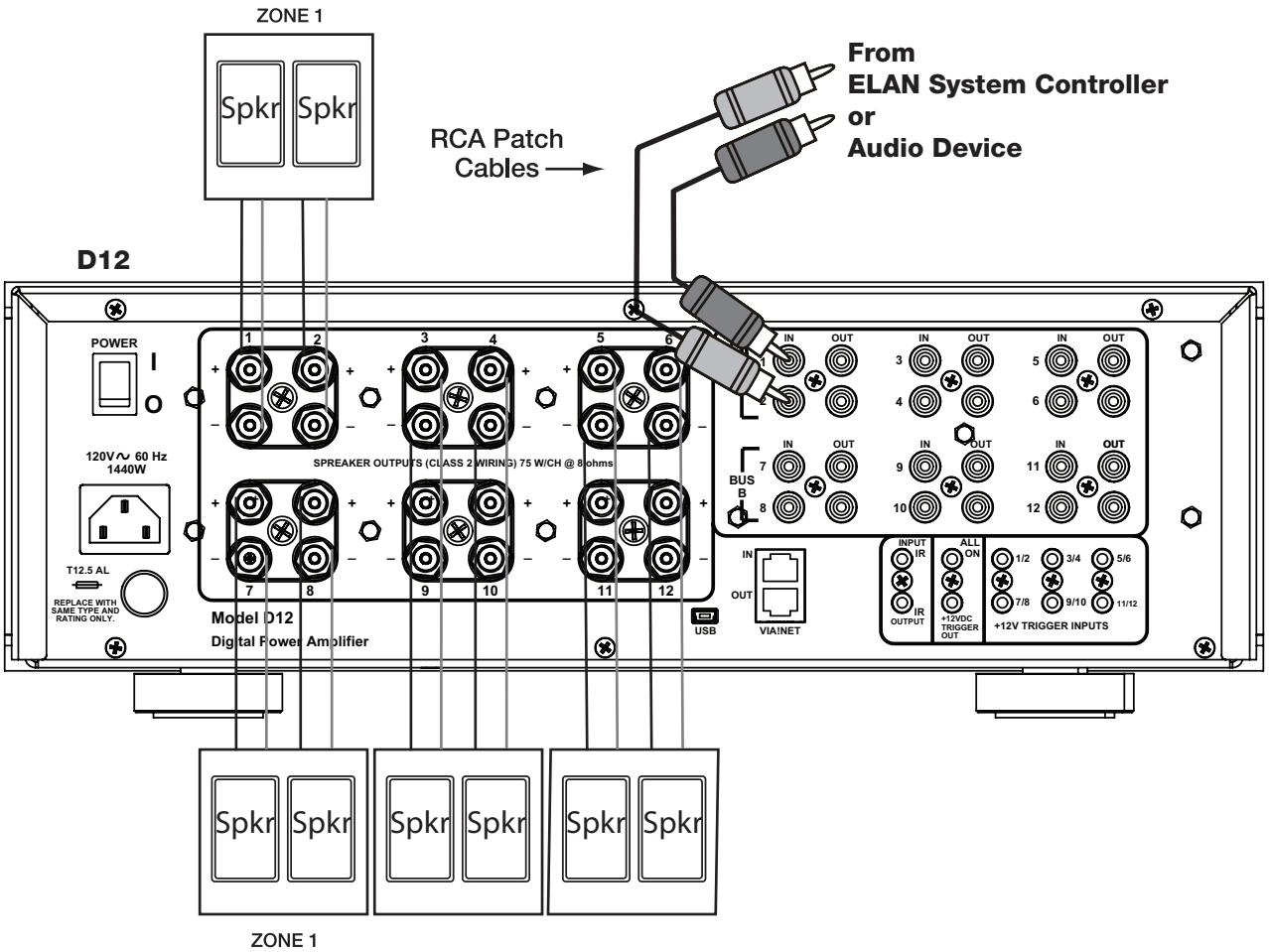
Volume is adjusted by the **ELAN System Controller** or by the other **Audio Device**. Increasing or decreasing the volume increases stereo channels 1, 2, 3, 4, 5, 6, 7, and 8.



Stereo Bus A Using D12 Settings

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Stand-Alone Stereo Bussing with Multiple Chassis

Prerequisites First D12 Chassis

Factory defaulted
ELAN mode

Channel Range:

Set to 1 to 12

VIA!NET Address:

Set to 0

Input Select Menu:

Channel All ODD with Input set to 1 Bus A
Channel All Even with Input set to 2 Bus A

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13
"Channel Range" on page 23
"VIA!NET Address" on page 23
"Input Select Menu" on page 8

Prerequisites Second D12 Chassis

Factory defaulted.
ELAN mode

Channel Range:

Set to 13 to 24

VIA!NET Address:

Set to 1

Input Select Menu:

Channel All ODD with Input set to 1 Bus A
Channel All Even with Input set to 2 Bus A

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13
"Channel Range" on page 23
"VIA!NET Address" on page 23
"Input Select Menu" on page 8

This example shows the preamp output of an A/V Receiver being distributed in a wide-area application, such as a great room. Speakers for both chassis are stereo for up to 12 pairs of speakers.

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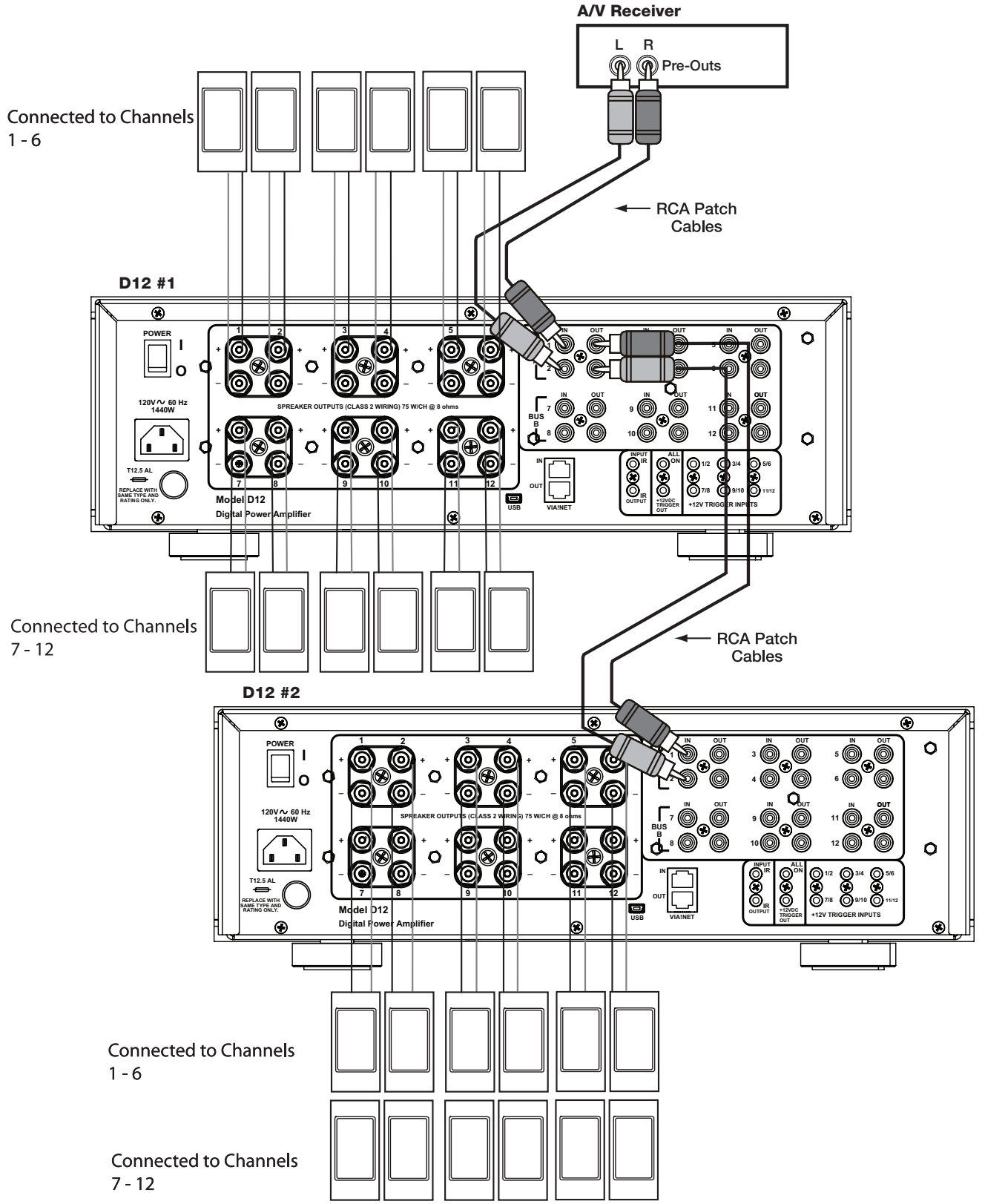

Multi-Channel Stereo Bussing D12 Settings

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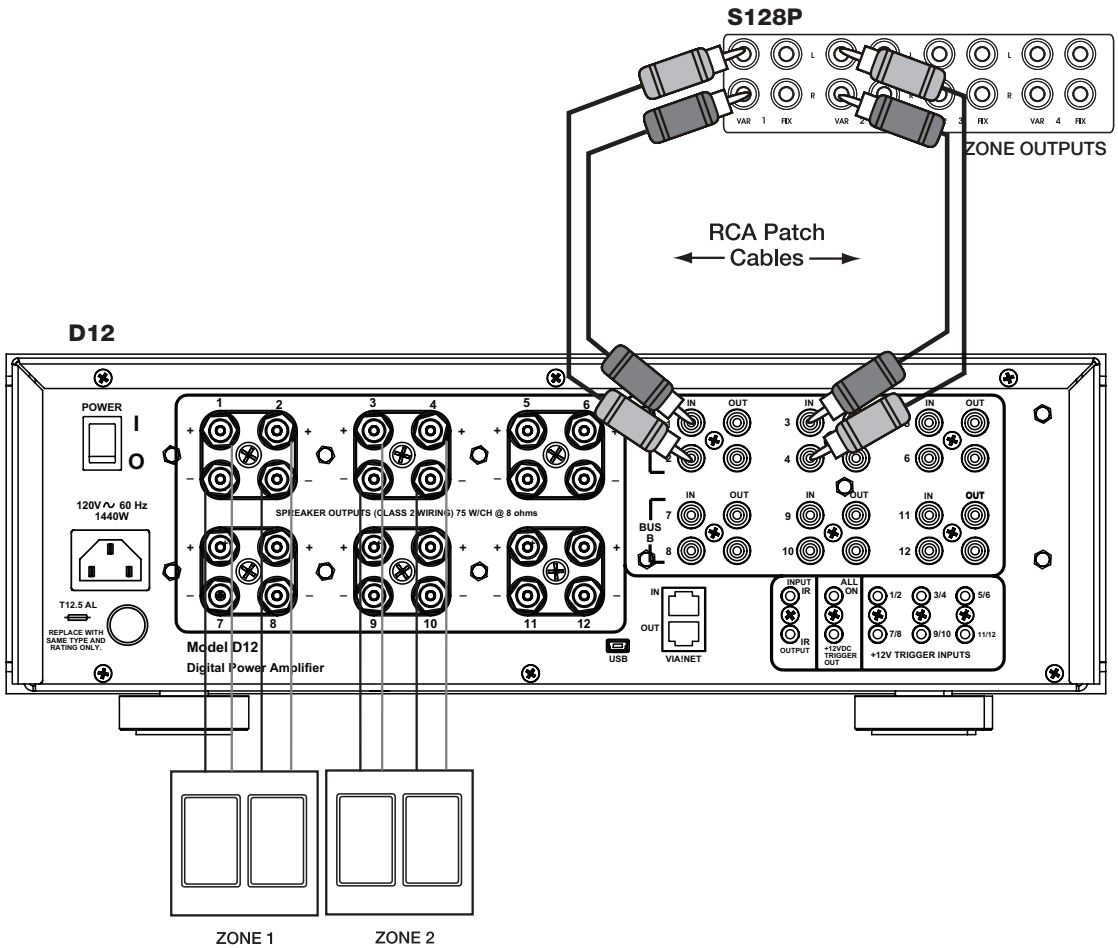
Multi-Room Stereo Zones

Prerequisites

Factory defaulted

The D12 is designed to easily power up to six independent stereo zones with any ELAN multi-room controller. This is the standard configuration for most multi-zone audio distribution systems. Each pair of speakers will have independent line-level volume control.



Multi-Room Stereo Zones

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S128P Sub-Zones

ELAN Legacy Standard application

Prerequisites:

Factory defaulted
Normal mode

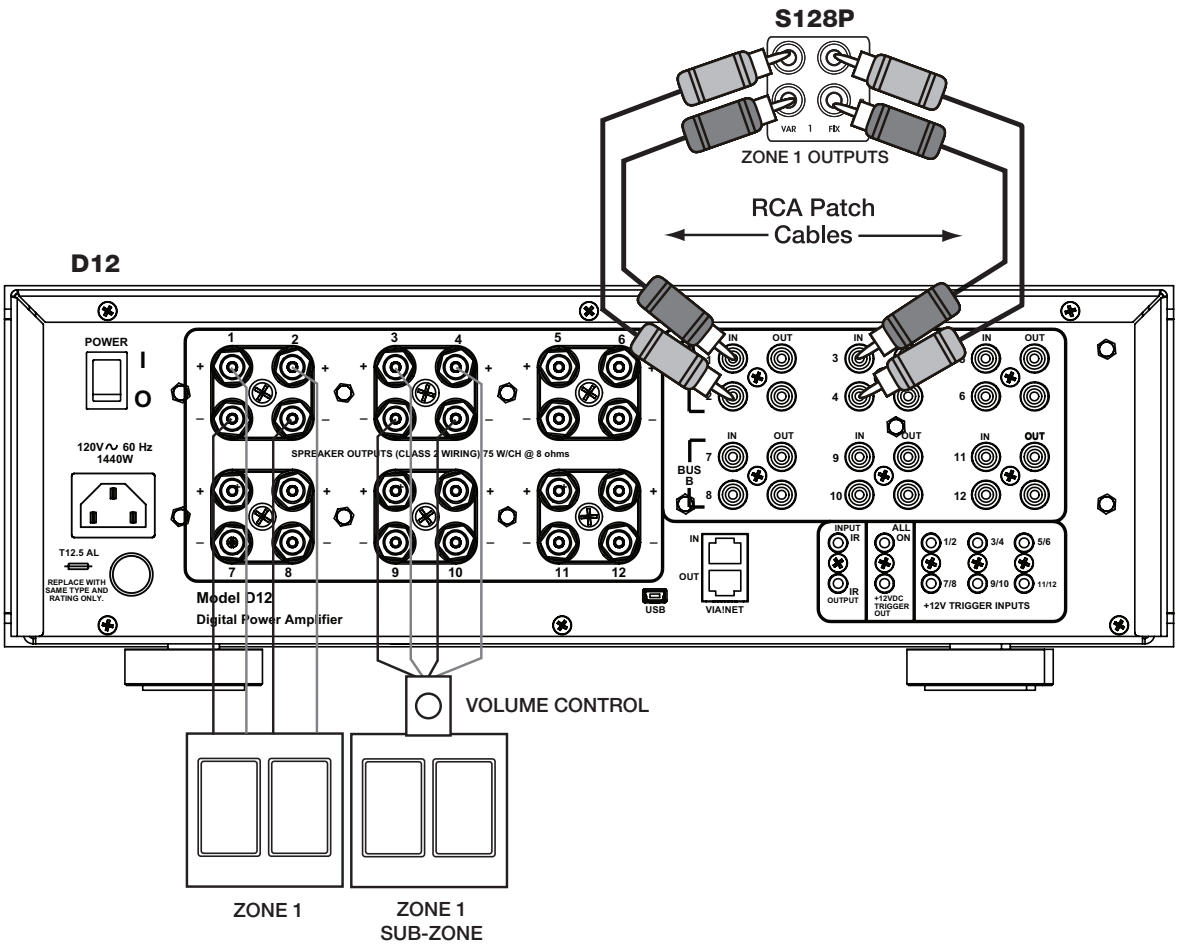
See:
"Restore Defaults" on page 20
"Operating Mode" on page 13

ELAN's S128P Multi-Room Controller has fixed preamp outputs for the addition of sub-zones. The sub zones can be amplified using rotary or electronic volume controls.

The S128P increases or decreases the volume level for channels 1 and 2.

The volume control increases or decreases the volume level for channels 3 and 4.

Note: Use 100W rated volume controls only! Use of lower rated volume controls can result in severe damage.



S128P Sub-Zones

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ELAN special application

Prerequisites:

Factory defaulted
ELAN mode

Channel Range:

Set to 1 to 12

Input Select Menu:

Channel 1 with Input set to 1 Bus A
Channel 2 with Input set to 2 Bus A
Channel 3 with Input set to 1 Bus A
Channel 4 with Input set to 2 Bus A

See:
"Restore Defaults" on page 20
"Operating Mode" on page 13
"Channel Range" on page 23
"Input Select Menu" on page 8

Instead of using volume controls to have independent control of the volume in a zone and sub zone, control the channels of the D12 using IR Commands. Route the FIX out of the S128P to audio input 1 and audio input 2 (**Bus A**).

The S128P increases or decreases the volume level for channels 1 and 2 Main Zone.

To control the Sub Zone speakers that are connected to channel 3 and 4, send D12's IR Commands **Channel 3 Volume Up**, **Channel 3 Volume Down**, **Channel 4 Volume Up and/or Channel 4 Volume Down** to the D12. These commands can be programmed on a different ELAN control located in the Sub Zone or from the same control located in the Main Zone.

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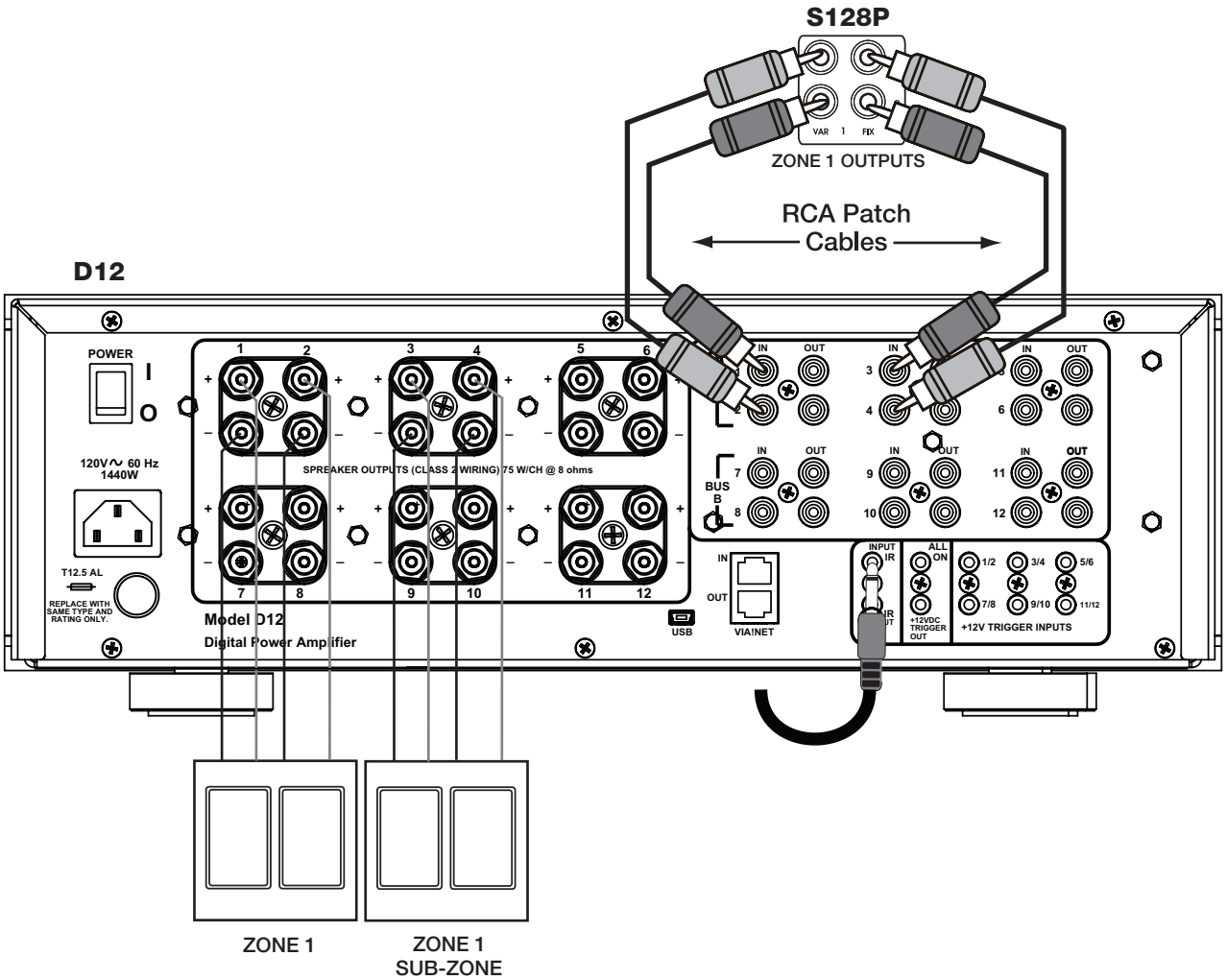

Sub-Zone wtih D12 Control

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Troubleshooting

General

Symptom	*Possible Cause*	*Solution*
Amplifier Will Not Power Up	1. Power switch is Off	1. Turn switch On. Switch is located on the back of unit.
	2. Circuit breaker tripped	2. Reset circuit breaker. The D12 draws 12A of AC current. Ensure that combined current draw of all devices on circuit does not exceed the circuit's capacity.

Audio

Symptom	*Possible Cause*	*Solution*
No Audio on one or more channels	View **"Diagnostics Menu" on page 17.**	Cycle Power.
	1. Loose/bad speaker cable connection	1. Check cable ends at binding posts and speaker terminals.
	2. Break/short in speaker cable	2. Check continuity of each speaker cable using multimeter. If short or open is indicated, check wiring for proper connections.
	3. Speaker is defective	3. Swap with known good speaker.
	4. RCA patch cable defective	4. Swap with known good patch cable.
	5. Source not sending audio	5. Verify source is powered up and playing. Check any tape monitor settings on A/V Receiver.
	6. Amplifier is overheating due to inadequate ventilation or prolonged operation at clipping levels.	6. (a) Turn the amplifier off and allow the internal circuits to cool. (b) Ensure that the amplifier has proper ventilation. Add cooling fan if necessary. (c) Lower the volume level controls for that channel pair.
Very Low or No Sound on Some or All Channels	1. Volume or gain set low.	1. Verify and correct volume/gain settings.
	2. Audio input cable is bad.	2. Check source equipment cables for damage and faulty connections and correct.
	3. AVR is indicated, overheating issue.	3. Verify speaker impedance and correct

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Symptom	*Possible Cause*	*Solution*
Audio “Hum”	1. Ground potential difference between source components (ground loop)	1. (a) Test AC outlet using ground tester. (b) Reverse the AC plug of components with non-polarized ends plugged into the same outlet strip as amp.
	2. Faulty/damaged cables	2. Check source equipment cables for damage and faulty connections.
	3. Faulty wiring	3. (a) Make sure volume controls are not hooked up backwards. (b) Check for shorts in wiring (see item 2 in “No audio…”).
Distorted Audio at Normal Volume Levels	1. Input gain set too high	1. Reduce gain to the channel in question.
	2. Defective/incompatible speaker	2. (a) Check for physical damage to speaker. (b) Ensure speakers have appropriate power rating for amplifier. (c) Ensure speakers have at least 4 Ohm impedance. This amp is compatible with speakers with 8-4 Ohm impedance or greater.
	3. Volume control miswired	3. Check for proper input/output connections at volume control. Input comes from amplifier, output goes to speakers.
	4. Volume control Impedance Match settings incorrect	4. Verify/correct Impedance Match settings.
Audio is Unclear, Bass Response Low	Speakers out of phase	Verify that + of amplifier goes to +of speaker and - of amplifier goes to - of speaker on ALL speaker leads.
Incorrect Source Playing on Speakers	1. Source connected to wrong input of amplifier	1. Verify/correct input connections.
	2. Speakers connected to incorrect speaker outputs	2. Verify/correct speaker connections.
	3. Incorrect input selected for channel	3. Verify input menu
Volume level/ Gain Cannot be Increased	1. ACE Limiter engaged	1. Check Volume menu for ACE indication, if indicated check and verify procedures as listed in "Distorted Audio at Normal Volume Levels".
	2. "AVR" or Automatic Volume Reduction is engaged	2. Check Volume menu for AVR indication, check Ambient Temperature menu for possible overheating. Check and verify proper ventilation. If well ventilated follow the steps for "Distorted Audio at Normal Volume Levels".
First notes of door chime from C2 missing.	Power Save enabled	Use 12V Zone Triggers or disable Power Save.
Signal to rear fill channels cut in and out.	See above	See above

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IR Control

Symptom	*Possible Cause*	*Solution*
IR Icon does NOT flash when a button pressed.	1. IR controller not programmed. 2. IR signal path wiring bad.	Program IR controller. Set D12 to ELAN mode Verify IR signal path wiring. Check keypads, IR sensors, IR distribution blocks, D12 IR Input jack, IR emitters, etc.
No channel selected from IR controller. IR Icon DOES flash when button pressed.	1. Incorrect IR commands programmed (not D12 commands). 2. Chassis codeset incorrect.	Verify/correct IR programming. Verify/correct IR programming.
Intermittent or no control from IR controller. IR Icon on LCD flickers or is lit constantly.	IR flooding.	Check IR receivers for ambient light or plasma TV flooding.
Incorrect channel and/or chassis selected.	Incorrect D12 IR commands programmed.	Verify/correct IR programming.

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Specifications

Audio Section	
Output Power RMS	100WPC @ 4 Ohms, 75WPC @ 8 Ohms all channels driven
Frequency Response	20Hz to 20kHz -3 dB at 8 Ohms
Full Power Bandwidth	10Hz to 25kHz
Signal to Noise	> 102 dB (A weighted)
Channel Separation	> -70dB (channel to channel @ 1kHz)
Total Harmonic Distortion	< .04%
Intermodulation Distortion	< 0.1%
Input Impedance	49k Ohms
Connectors	
Input/Loop Output	RCA Stereo
Speaker Output	Gold Plated 5 Way Binding Post
Power	
AC Power Requirements	120VAC, 1440W / 240VAC, 1440W
Current Draw	12A @ 120 VAC / 6A @ 240VAC
Standby Power saving Mode	20W
Triggers	
Remote Trigger Input	5 to 24 Volts AC/DC
Loop Output trigger	+12VDC @ 10 mA
Dimensions w/Feet (3U w/o Feet	
In.	17 W x 5 7/8 H x 17 D
mm.	432 W x 149 H x 432 D
Weight	
lbs.	47
kg.	21.32

Technical Support

If, after carefully following the steps in the **Troubleshooting** section, you are unable to resolve issues with the installation or operation of the D12 Digital Power Amplifier, please call ELAN Technical Support at 1-800-622-ELAN (3526).

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Limited Warranty

ELAN HOME SYSTEMS L.L.C. (“ELAN”) warrants the D12 Digital Power Amplifier to be free from defects in materials and workmanship for the period of two years (2 years) from date of purchase. If within the applicable warranty period above purchaser discovers that such item was not as warranted above and promptly notifies ELAN in writing, ELAN shall repair or replace the item at the company’s option. This warranty shall not apply (a) to equipment not manufactured by ELAN, (b) to equipment which shall have been installed by other than an ELAN authorized installer, (c) to installed equipment which is not installed to ELAN’s specifications, (d) to equipment which shall have been repaired or altered by others than ELAN, (e) to equipment which shall have been subjected to negligence, accident, or damage by circumstances beyond ELAN’s control, including, but not limited to, lightning, flood, electrical surge, tornado, earthquake, or other catastrophic events beyond ELAN’s control, or to improper operation, maintenance or storage, or to other than normal use of service. With respect to equipment sold by, but not manufactured by ELAN, the warranty obligations of ELAN shall in all respects conform to the warranty actually extended to ELAN by its supplier. The foregoing warranties do not cover reimbursement for labor, transportation, removal, installation or other expenses which may be incurred in connection with repair or replacement.

Except as may be expressly provided and authorized in writing by ELAN, ELAN shall not be subject to any other obligations or liabilities whatsoever with respect to equipment manufactured by ELAN or services rendered by ELAN.

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